Supporting evidence to FoGL's submission to the Inquiry and Advisory Committee

Hazelwood Rehabilitation Project

Environment Effects Statement

The question the EES did not ask:

the Latrobe, the lower Latrobe wetlands and the Gippsland Lakes

12 November 2026

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Index: headline issues, points and asks

This index replaces the executive summary. The submission in brief states FoGL's case; this document holds the evidence. Paragraphs are numbered continuously and cited in square brackets, for example [102]; the questions in Part I are numbered Q1 to Q23. The numbers are fixed for the hearing. The take means the project's surface water take from Moondarra Reservoir, for filling and for top-up; groundwater is named separately. MNES are the matters of national environmental significance protected under the EPBC Act, for which the Commonwealth Minister decides approval [13]. The evidence is organised by the four EPBC controlling provisions: Parts B and C hold the facts

on the take and the water, Part D applies the significance test for each provision (D1 to D4) and then avoidance, mitigation and offsets (D5), and Part H sets out the findings and conditions by provision.

Six headline issues

1. The take: assessed only at the margin, and unconditioned. The EES treats the first 20 GL/yr, which has been filling the void since late 2021 without final approval, as the no-project world, so only a 10 GL/yr increment is assessed. Hazelwood alone would take river water with no cap, season, low-flow rule or end date of its own, the conditions the State has given legal force for Loy Yang, and no rivers assessment shows the three mines' takes together (Parts A and B, and Part C, [71] to [75]; Points 1 to 3 and 6; [211](a), (o); conditions 1 and 7). Water resource; Victorian levers.

2. The flow regime the Ramsar site depends on. The take reduces the freshes, floods and baseflows that cue the site's fish to migrate and spawn, connect the river with its wetlands and the estuary, fill and flush the lower Latrobe wetlands and hold back the salt wedge [1]. The site's fish include the short-finned eel, a species of significance in the Gunaikurnai cultural water objectives, which leaves for the sea on freshes and whose young return through the estuary [119]. The EES's flow tests count only years with no event, or the near-total loss of a baseflow, and none is timed to when the fish spawn and migrate [117]. It computes no drying duration for the wetlands, assesses the site against limits the State has since revised, and leaves Lake Wellington with no limit of its own [105]. The salinity rise, largest in dry years, is below what lake monitoring can detect (Part D, D2, and [198]; Points 9 to 14; [224](b) to (e); conditions 1, 4 and 6). Ramsar wetland.

3. The species that depend on those flows. The bittern, the Australian Painted Snipe, the Grayling, the Growling Grass Frog and the listed shorebirds are not assessed where the take reaches them. The Commonwealth rates changed water regimes a Very High risk to the bittern, the painted snipe and the frog, and the recovery plans for all three bind the decision [127], [131]. On site, the EES removes important habitat for Latham's Snipe that the Commonwealth says must be avoided (D3, D4; Points 15 to 17; [224](f) to (i); B1 to B13). Threatened and migratory species.

4. The dry and interrupted fill. Dry-climate results were kept out of the EES's conclusions, the post-1997 scenario was not run for the rivers, and the supply and groundwater the fill relies on are not secured (Part C, [39] to [57], and Part F; Points 4, 5 and 19; [214], items 1 to 3). Water resource.

5. Perpetual obligations and discharge. The pit lake needs top-up for as long as it exists from sources that expire, no one is bound to pay for it, and the connected pit lake would discharge without metal or nutrient criteria (Part C, [76] to [85], and Part G; Points 7 and 8; conditions 5 and 9). Water resource.

6. Avoidance not taken, and no compensation. The EES and the IESC identify ways to avoid harm that the proponent does not take; the only offset is a general native vegetation offset; and the measures the conclusion of no material impact on MNES relies on fail the 2012 Offsets Policy (D5; Point 18; [224](j) to (l); fallback controls B1 to B13). All four provisions.

Index of points

Point (submission in brief)	Evidence	Answered by
A water resource (ss 24D, 24E)		
1. The State has already set the benchmark for this take: net historic use, restricted or halted in dry conditions	[3], [4]; [29]; Table 1	Condition 1; [222](a)
2. The EES measured the last 10 GL of a 30 GL take	[24] to [28]; [61]	[211](a), (o); [214], item 1
3. Hazelwood is the only mine taking river water for rehabilitation with no instrument or conditions of its own	[30] to [35]	Condition 1; [222](e)
4. The water supply the fill relies on is not secure	[43] to [48]; Q3	[214], item 2; condition 5
5. The dry case was run, then kept out of the conclusions	[49]; [51] to [56]; Q12	[211](c); [214], item 3
6. Three mines, one river, no cumulative scenario	[71] to [75]; Table 6	Condition 7; [214], item 5

Point (submission in brief)	Evidence	Answered by
7. The connected pit lake manages its quality by exporting it	[76] to [85]; Q7	Conditions 2 and 9
8. A pit lake that needs top-up water in perpetuity, with no secured source and no one bound to pay	[203] to [207]; [187]; Q10, Q19	Condition 5; [223](f)
A Ramsar wetland (ss 16, 17B)		
9. The site's fish and wetlands depend on the flows the take reduces, and the EES's flow tests cannot see the loss	[1]; [60]; [115] to [121]	[224](b), (e); [214], item 6; conditions 1 and 4; B11, B12
10. The short-finned eel needs the flows at both ends of its life, and the Gunaikurnai name it a species of significance	[119]; [118]; [165]	[224](e); [214], item 6; conditions 1 and 4
11. The salinity increase is largest when Lake Wellington is already most saline, and "less than six months" has no calculation	[107], [108]; Q9; Annex 1, sections 1.3, 1.4	Conditions 1, 3 and 4; Q9
12. The Lakes are already becoming more marine, and the bird survey data reflect this	[110] to [114]; Annex 1, section 1.2	[224](c); condition 6
13. The Ramsar site was assessed against limits the State revised in 2023	[95] to [104]; [105]; [122], [123], [124]; Table 4	[211](i); [224](d); condition 6
14. No lake monitoring program will detect the predicted salinity increase	[198] to [201]; Annex 1, sections 1.7, 1.8	Condition 4; [223](a)
Listed threatened species (ss 18, 18A)		
15. The bittern and the other flow-dependent wetland species: critical habitat on site and downstream, assessed properly in neither place	[126], [127], [128], [129]; [131]; [132], [133], [138]; Table 8	[224](f) to (h); conditions 1 and 4; B1 to B3, B5
16. The Grayling's important population, and the Dwarf Galaxias	[134], [135]; Table 8; Q22	[224](g); [214], item 14; Q22
Listed migratory species (ss 20, 20A)		
17. Latham's Snipe on site, and the shorebirds at the Ramsar site	[130], [131]; D4: [140], [141], [142], [143] to [145]	[224](i); B1, B3, B13
Avoidance, mitigation and offsets		
18. Avoidance identified and not taken; no offset strategy; the complementary measures fail the 2012 Offsets Policy	D5, [146] to [158]	[224](j) to (l); B4, B7, B8
The Victorian levers		
19. A capped river take plus manufactured water was never assessed	Part F; [185] to [188]	Condition 8; [214], item 9

What FoGL seeks

FoGL asks the IAC to obtain further information before the Hearing, without delaying it [213]. Its requests are summarised below and listed in full, with the Terms of Reference clause each answers, at [239].

FoGL requests that the IAC	See
Direct the proponent to provide fifteen items of further information, including the full take against current conditions, an interrupted fill, the dry results, the environmental water actually allocated, a cumulative scenario, a Ramsar reassessment with flow events per year, survey and habitat data, a Grayling assessment and the offset inputs	[214]
Include questions from Part I, in particular Q5 and Q15, in its own request for information	[215]; Part I
Recommend against the connected scenario, as the IESC did	[213]; condition 2
Recommend that no authorisation be granted for the above-cap flood flows	[216] to [219]

FoGL requests that the IAC	See
Recommend a Tyers take rule, and no variation of the groundwater licence without assessment	[220], [221]
Recommend a cap on the take at net historic use, a take window with a rule that stops the take while a fresh is running, a drought pause, environmental water first, a combined supply and a statutory instrument for the take	[222]; conditions 1, 3, 5, 8
Recommend downstream monitoring, triggers, independent audit, a contingency plan for diversion failure and secured funding in the Environmental Management Framework	[223]; condition 4
Make findings on MNES by controlling provision, including that the flow regime and the species that depend on it were not assessed, and that the recovery plans for the bittern, the painted snipe and the Growling Grass Frog bind the decision; and recommend controls	[224], [225]; [127], [131]; conditions 1, 4 and 6
If the action is approved despite those findings, recommend the fallback controls B1 to B13 and the Victorian conditions V1 to V5	[236], [237]
Recommend modifications to draft Amendment C159latr, including continuing monitoring of discharges to Eel Hole Creek	[226]

Guide to this submission

Part	What it covers
A	Why the Lakes depend on the Latrobe, the State's 2020 benchmark, who FoGL is, the legislative and policy framework, including later listings and the recovery plans that bind the decision (A4), and the chain of effects through the flow regime, with the threatening processes it engages (A5)
B	The baseline and the take: what the baseline contains, and the conditions the take lacks
C	Water: supply, groundwater, climate, flows, environmental water, flood harvesting, cumulative effects and water quality
D	The controlling provisions: what the Commonwealth found in 2023 (D0); a water resource (D1); the Ramsar wetland, including what each flow component does, the revised limits, salinity and the site's fish (D2); listed threatened species, including the bittern's recovery plan and the other species that depend on the flows (D3); listed migratory species (D4); avoidance, mitigation and offsets (D5); and what FoGL seeks (D6)
E	Traditional Owner and community values
F	Alternatives, and the combined supply the analysis never scored
G	Mitigation of the take, the drought plan, monitoring and the pit lake's perpetual obligations
H	Findings, directions, recommendations and conditions, arranged to the Terms of Reference, with findings and controls by provision, fallback controls B1 to B13, and a summary table
I	Questions for the proponent, Q1 to Q23
Tables 1 to 8	Supporting comparisons, the Ramsar limits, the alternatives scores, cumulative effects, the EES's internal inconsistencies (Table 7) and the listed species against the Commonwealth's advice (Table 8); the Bibliography at the end lists every source cited
Annexes 1 and 2	FoGL's analysis of the EPA Gippsland Lakes record, 1990 to 2026, with its methods and code

Abbreviations

Abbreviation	Meaning
AHD	Australian Height Datum
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
CCPS	Critical control performance standard (draft DMRP)
CM1, CM2	Complementary measures 1 and 2 (Technical Report D, s 9.8.5)
DEECA	Department of Energy, Environment and Climate Action
DELWP	Department of Environment, Land, Water and Planning (former)
DMRP	Declared Mine Rehabilitation Plan
ECD	Ecological Character Description
EES	Environment Effects Statement
EGCMA	East Gippsland Catchment Management Authority
EPA	Environment Protection Authority Victoria
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
FFG Act	Flora and Fauna Guarantee Act 1988 (Vic)
ERR	Earth Resources Regulation
ERS	Environment Reference Standard
GL, ML	Gigalitre, megalitre
GLaWAC	Gunaikurnai Land and Waters Aboriginal Corporation
HARA	Hazelwood Ash Retention Area
HCP	Hazelwood Cooling Pond
IAC	Inquiry and Advisory Committee
IESC	Independent Expert Scientific Committee on Unconventional Gas Development and Large Coal Mining Development (formerly on Coal Seam Gas and Large Coal Mining Development)
LAC	Limits of acceptable change
LVRRS	Latrobe Valley Regional Rehabilitation Strategy
MLRA	Mine Land Rehabilitation Authority
MMD, MRD	Morwell Main Drain, Morwell River Diversion
MNES	Matters of national environmental significance under the EPBC Act
MRSD Act	Mineral Resources (Sustainable Development) Act 1990 (Vic)
PFAS	Per- and polyfluoroalkyl substances
PSU, ppt	Practical salinity units, parts per thousand (numerically almost the same at the salinities discussed here)
RCT	Resource condition target
RL	Reduced level, in metres AHD
TN, TP	Total nitrogen, total phosphorus
WGCMA	West Gippsland Catchment Management Authority
WPV	Work Plan Variation

Part A: The Lakes, FoGL and the legislative and policy framework

Finding sought. The State has already set the measure for this take: filling limited to net historic use, 10.3 GL a year, and restricted or halted in dry conditions. FoGL submits that the IAC should assess the project against that benchmark (Points 1 and 3; [222](a); condition 1). Headline issue 1.

A1 Why the Lakes depend on the Latrobe

1. The Latrobe is an essential source of freshwater for the Ramsar-listed Lakes. The State's water study says so plainly, adding that "The frequency, duration, timing and magnitude of freshwater inflows drive ecological functioning in the Gippsland Lakes".[1]

- **The wetlands and their species.** The lower Latrobe wetlands (Sale Common, Dowd Morass and Heart Morass) rely on those inflows. They provide habitat for many waterbirds, including migratory species protected under international agreements,[2] and they are critical habitat for the Australasian Bittern and home to the Growling Grass Frog ([126]; [131]).
- **The regional waterway manager.** The West Gippsland Catchment Management Authority (WGCMA) states in its 2026 strategy for the river that "The two most significant threats to the waterways of the Latrobe system are the combined effects of mine rehabilitation and climate change on hydrology".[3] Its staff and expert panel warn that filling the mine voids with river water "risks further constraining the ability to provide the water required to sustain critical ecological processes", constraints "already evident in the lower reaches and wetlands, where salinity, habitat loss, and water quality issues are most acute".[4]
- **How a loss of inflow reaches the site.** Through the whole flow regime, not salinity alone. Fewer and shorter freshes and floods mean fewer cues for the site's fish to migrate and spawn, weaker connections between the river, its wetlands and the estuary ([117] to [121]), longer drying of the wetlands [98] and rising salinity [106]. Those changes reach the bittern, the painted snipe, the frogs and the migratory shorebirds as well as the fish (D3, D4).
- **Salinity.** The State's 2024 Ramsar Site Management Plan lists water use and climate change that "increase salinity affecting wetland vegetation, fish, frogs and waterbirds" among its priority threats to the site.[5] Lake Wellington was fresh, below 0.5 ppt, before the permanent entrance was opened in 1889, and has averaged about 8 ppt in recent decades; the EES expects its continuing salinisation to "change the character of the fringing vegetation from freshwater woodland to saltmarsh".[6]
- **What the limits protect.** The site's 2010 limits of acceptable change treat the conversion of the freshwater marshes at Sale Common and Macleod Morass from giant rush, common reed and cumbungi to brackish vegetation as a change in ecological character,[7] and define optimal black bream spawning conditions as a brackish water column, about 17 to 21 g/L, with the salt wedge in the mid-lower estuary.[8] Swamp paperbark in the fringing wetlands is "especially vulnerable to salinity changes".[9] Part D sets out the evidence ([100], [103] to [113]).

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[1] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy: Latrobe System Water Availability Technical Report*, p. 7.
[2] Ibid.
[3] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 40.
[4] Goode, A. et al. 2026, *Implications of the clean energy transition for waterways*, p. 2.
[5] East Gippsland Catchment Management Authority 2024, *Gippsland Lakes Ramsar Site Management Plan*, Table 10, p. 47.
[6] ENGIE Hazelwood 2026, *Hazelwood Rehabilitation Project Environment Effects Statement*, Chapter 25, p. 25-12.
[7] Ibid., Table 25-5, p. 25-18.
[8] Ibid., p. 25-20.
[9] ENGIE Hazelwood 2026, *Hazelwood Rehabilitation Project Environment Effects Statement*, Chapter 11, p. 11-24.

2. The Latrobe matters most to Lake Wellington, and matters more in dry years.

- **Share of inflow.** It supplies about 57 per cent of Lake Wellington's freshwater inflow on average,[10] "nearly 60 %" in the State's 2020 study.[11] It "generally supplies a greater proportion of discharge during drier years".[12]
- **Dry years.** On gauged flows for 1990/91 to 2024/25, its share was 62 per cent in the driest quarter of years, and up to three-quarters. That compares with under half in the wettest quarter, and 52 per cent overall (Annex 1, section 1.3). Rosedale sits above some lower Latrobe tributaries, which may explain why the gauged share is below the EES's 57 per cent.
- **Extraction against inflow.** WGCMA's 2022 review of Lake Wellington and its wetlands found that water resource use in the Latrobe and Thomson basins, "particularly in dry years, results in more water being extracted for consumptive use than is discharged to Lake Wellington in some years"; Latrobe extractions averaged 157,000 ML a year from 2002 to 2017.[13]
- **The Lakes as a whole.** The Latrobe supplied 13 to 46 per cent of river inflow over two decades,[14] and the western rivers together about 58 per cent.[15] The dry-year shift is specific to Lake Wellington, which the Latrobe feeds directly.
- **Extraction and drought.** About 20 per cent of average river inflow to the Lakes is extracted before it arrives, 95 per cent of it from the Latrobe and Thomson.[16] In drought, the Lakes' water residence time extends to "almost infinity".[17]

A2 The question the State has already answered

3. The State has already answered: cap the take at net use and halt it in drought. Between 2017 and 2023 it examined whether the Latrobe system could supply the rehabilitation of three mines:

- The Ecological Effects Assessment, prepared for the LVRRS, concluded that "more fresh water for the environment is required", not less.[18]
- DELWP found that filling "would be limited to the power stations' current annual net usage and filling would be restricted or halted under dry conditions", to protect the river, the lower Latrobe wetlands and the Lakes.[19]
- The Strategy set the cap in the same terms. It recorded that Latrobe surface water availability had fallen from about 800 to about 600 GL a year, and that rehabilitation supply "would need to be no more than the power stations' current annual net usage, and may need to be limited to a volume smaller than this".[20]
- DELWP found it "prudent" to treat post-1997 conditions as a possible new baseline.[21] Under the medium projection, demand would exceed average availability from about 2035. Under post-1997 or dry conditions, filling "could be substantially lengthened or would no longer be

[10] ENGIE Hazelwood 2026, *Technical Report D: Catchments, Rivers and Wetlands*, p. 175; ENGIE Hazelwood 2026, *Hazelwood Rehabilitation Project Environment Effects Statement*, Chapter 25, p. 25-15.
[11] Hale, J. et al. 2020, *Latrobe Valley Regional Water Study: Ecological Effects Assessment*, p. 4.
[12] ENGIE Hazelwood 2026, *Technical Report D*, p. 175.
[13] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 6-7.
[14] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 4.
[15] West Gippsland Catchment Management Authority 2018, *Lake Wellington Land and Water Management Plan 2018-2028: Technical Appendices*, p. 33.
[16] BMT WBM 2010, *Gippsland Lakes Ramsar Site Ecological Character Description*, p. 66.
[17] West Gippsland Catchment Management Authority 2018, *Lake Wellington plan, Technical Appendices*, p. 27.
[18] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. ii.
[19] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 26.
[20] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, pp. 12-13.
[21] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. iii.

possible without compromising values associated with environmental or other consumptive uses of water".[22]

- DEECA found that take at net historic use results in "no overall increase in risk to environmental and Traditional Owner values",[23] against a baseline risk that is already high.

The principle behind those answers is the Strategy's: "Any water used for mine rehabilitation should not negatively impact on Traditional Owners' values, environmental values of the Latrobe River system or the rights of other existing water users".[24] Technical Report B calls it "a key principle of the LVRRS".[25] Technical Report A records that the Strategy and its Amendment "have statutory force under Part 7B of the MRSD Act".[26] They are policy to which the IAC must have regard in finding whether acceptable environmental outcomes can be achieved (Terms of Reference, cl 28(b)). The State's measure of a rehabilitation take is therefore its effect on those values, not whether an entitlement permits it [34].

4. **The EES asks a different question.** It asks whether 30 GL/yr is worse than a 20 GL/yr baseline it treats as already approved, finds the difference marginal, and treats marginal as not consequential. This submission asks the State's question instead.

A3 Who FoGL is and how it approaches this submission

5. **Friends of the Gippsland Lakes, Parks and Reserves Inc. (FoGL) is a volunteer association and registered charity working for the Lakes.** It was established in 2005, is based in Paynesville, and is incorporated (A0047246N). Its mission is to protect and enhance the natural environment and biodiversity of the Gippsland Lakes area. It pursues that through research, evidence-based submissions, on-ground projects and community education, supporting the Ramsar-listed Lakes and the parks, reserves, wetlands and tributaries that feed them. FoGL and the Concerned Waterways Alliance, of which it is a member group, made submissions on the draft Declared Mine Rehabilitation Plan on 6 September 2025, and this submission builds on that work.

6. **FoGL speaks from where every effect this EES assesses on the river ends.** FoGL works cooperatively with agencies, communities, Traditional Owners, landowners and industry, grounded in data and science alongside local and traditional knowledge. Many of its members live around the Lakes, at the downstream end of the Latrobe system.

7. **FoGL holds the EES to the State's conclusions and to its own documents.** Almost every point FoGL makes rests on the proponent's words, figures and tables, cited by page and checked against the exhibited document or the published source.

8. **FoGL's approach is constructive.**

- **The final level.** FoGL reserves its position on the final pit lake level until the stability studies it depends on are exhibited [187]. It urged a lower-volume landform in its 2025 DMRP submission. The evidence includes the proponent's lake level study,[27] and DEECA's 2025 finding for Yallourn and Loy Yang that a full fill is more robust, a study that excludes Hazelwood.[28] Studies the level depends on, including GHD's 2024 critical pool and minimum lake level assessment, are unexhibited [188].

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[22] Ibid., p. 30.
[23] Department of Energy, Environment and Climate Action 2023, *Explanatory note: guidance on the type of access arrangements that could apply to surface water from the Latrobe River system for the purpose of mine rehabilitation*, p. 12.
[24] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, p. 16, restating Principle 4 of Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, p. 19.
[25] ENGIE Hazelwood 2026, *Technical Report B*, p. 31.
[26] ENGIE Hazelwood 2026, *Technical Report A*, p. 27.
[27] CMQ 2025, *Pit lake level study (EES Attachment I, Attachment C)*.
[28] Department of Energy, Environment and Climate Action 2025, *A study into potential alternative and contingency rehabilitation options for Latrobe Valley coal mines*, p. 3.

- **What the EES did well.** FoGL acknowledges that the IESC found the EES documentation generally of good quality,[29] and that the groundwater assessment reported a cumulative scenario [75].
- **The Ramsar limits.** FoGL acknowledges that no current Ramsar limit was found exceeded in the 2022 assessment. It notes that one limit sat at its threshold, one could not be assessed, and the State's reports describe a deteriorating trajectory [104], [106]. WGCMA's 2022 review found Lake Wellington's 2010 limit exceeded, and suggested an exceedance at Sale Common; the Addendum removed the first [105] and made the second an aspiration target [98].

Its concern is with the questions the EES did not ask, the significance tests under the four controlling provisions it did not apply, and the conditions the State applies elsewhere but not here.

9. FoGL's concern about the submerged ash area remains, outside this EES. A pit lake at RL +45 m will submerge the Hazelwood Ash Retention Area, which is being dealt with under the environmental audit process, not the EES.[30] The record on the cap is incomplete:

- The draft DMRP describes the area as "currently uncapped", with a capping design "being progressed in consultation" with EPA. It is submerged once the pit lake reaches 372 GL at RL +19 m.[31]
- Chapter 8 of the draft DMRP records that "an interim cap" has been installed and is being assessed as a possible final cap.[32]
- Technical Report C1 (lake water balance and water quality) assumed cap infiltration of 5 per cent of rainfall until "a cap is confirmed".[33]

From about 170 GL in mid-2025, at about 32.5 GL a year, the ash would be submerged around 2031. FoGL maintains that an underwater landfill should not be created without a demonstrated, monitorable containment design. It requests that the audit relied on be exhibited ([214], item 8).

10. FoGL's 2025 requests, and the Concerned Waterways Alliance's, are unanswered. FoGL made twelve recommendations in its submission of 6 September 2025 on the draft Declared Mine Rehabilitation Plan, and the Concerned Waterways Alliance sought the same source hierarchy, recovery ratchet, public data and cumulative assessment, adding aquifer drawdown "envelopes" tied to the condition of groundwater-dependent ecosystems.[34] The Consultation Report lists FoGL among the groups met on connected waterways, and says the plan "will include a report on consultation activities undertaken".[35]

FoGL has found no itemised response to either submission. Against the final EES most of the requests are unmet: the take is not tied to environmental water recovery, which the EES instead counts as a complementary measure (D5); the Morwell River connection is kept, though the IESC reached the same view as FoGL [70]; manufactured water was rejected on cost and feasibility (Part F); the three mines' combined effect was modelled, then left out of the reported results [71] to [75]; and the datasets are to be "accessible by ENGIE Hazelwood and its contractors", with no oversight committee.[36] Groundwater-dependent ecosystems are to be monitored only "should potential impacts to GDEs be realised".[37]

11. FoGL tests the EES against the controlling provisions, its evaluation objectives and the Scoping Requirements. It states which requirement is engaged where the EES falls short. The case is organised by the four controlling provisions under the EPBC Act, because the

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[29] Independent Expert Scientific Committee 2025, *Advice to decision maker on coal mining project: IESC 2025-162, Hazelwood Mine Rehabilitation Project (EPBC 2022/09239)*, para 5.
[30] Ibid., Context.
[31] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan, Hazelwood Mine*, Chapter 6, p. 12.
[32] Ibid., Chapter 8, p. 5.
[33] ENGIE Hazelwood 2026, *Technical Report C1: Lake Water Balance and Water Quality*, p. 97.
[34] Friends of the Gippsland Lakes 2025, *Submission on the Hazelwood Mine Rehabilitation Plan*, 6 September 2025; Concerned Waterways Alliance 2025, *Submission on the Hazelwood Declared Mine Rehabilitation Plan*.
[35] ENGIE Hazelwood 2026, *Attachment V: EES Consultation Report*, pp. 14, 18.
[36] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 26, p. 26-51.
[37] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-43, ECMC08.

Commonwealth decides approval on them and the IAC must report on them (cl 28(g)); A4 sets out the framework. Part H follows the Terms of Reference: the findings the IAC must make, the directions it may give, and the recommendations its report must contain.

12. The index at the front shows the headline issues, where each Point is proved, grouped by provision, and what each Part covers.

A4 The legislative and policy framework

13. The project is a controlled action on four grounds. A Commonwealth delegate so determined on 20 February 2023, with these controlling provisions:

- Ramsar wetlands (ss 16 and 17B);
- listed threatened species and communities (ss 18 and 18A);
- listed migratory species (ss 20 and 20A);
- a water resource, in relation to a large coal mining development (ss 24D and 24E).[38]

This EES is the accredited assessment under the bilateral assessment agreement between the Commonwealth and Victoria, prepared under the IESC's Information guidelines.[39] Approval is not devolved to the State. The Commonwealth Minister, or a delegate, decides whether to approve the project, with or without conditions, after considering the Minister for Planning's assessment, and must first obtain the IESC's advice.[40] An approval bilateral agreement could not cover the water trigger in any case.[41] The 2025 amendments, which commenced in stages from December 2025, do not change the tests for this decision: the new approval considerations, including the unacceptable impact and net gain tests, apply only to actions referred on or after their commencement, and the changes to bilateral agreements apply only to agreements entered into or varied on or after it.[42]

14. The downstream effects are indirect consequences of the take, and they count. An event or circumstance that is an indirect consequence of an action is an impact of the action if the action is a substantial cause of it.[43] The narrower rule for consequences of another person's action does not apply, because Gippsland Water supplies the water at ENGIE's request, under the supply agreement.[44] To the extent the supply is part of the action, the Act treats the supplier as within it: an approval covers a person the holder requests to take the action, and the holder must take all reasonable steps to ensure that person complies with its conditions (ss 133(2A)(b), 134(1A)). The take's effects away from the works, on the Ramsar site about 70 km downstream and on the species that depend on the lower Latrobe and its wetlands, are of that kind. They arrive through the river: less fresh water, fewer and shorter freshes and floods, longer drying of the wetlands, and a faster move to saline conditions in the Latrobe estuary and Lake Wellington (A5).

Downstream effects are the classic case of indirect impact: the Full Court has traced the statutory concept to the "downstream effects" decision in the Nathan Dam case.[45] ENGIE's EPBC referral accepted as much. On a form that defines an indirect impact as "a downstream impact", it said that "The Project requires the continued use of surface water resources during filling of the Mine void",

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[38] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-7; Department of Transport and Planning 2023, *Scoping Requirements*, p. 9.

[39] Department of Transport and Planning 2023, *Scoping Requirements*, p. 9.

[40] *Environment Protection and Biodiversity Conservation Act 1999* (Cth), ss 47(4), 130(1) and (2)(a), 131AB, 136(2)(b) and (fa); ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-7.

[41] *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 46(1), which excludes ss 24D and 24E.

[42] *Environment Protection Reform Act 2025* (Cth), Sch 1, items 677(1), 690(1).

[43] *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 527E(1)(b).

[44] *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 527E(2)(c); ENGIE Hazelwood 2026, Environment Effects Statement, Chapter 9, p. 9-18.

Minister for the Environment and Heritage v Queensland Conservation Council Inc [2004] FCAFC 190; (2004) 139 FCR 24, [64], [67]-[72] (the Nathan Dam case); *Environment Council of Central Queensland Inc v Minister for the Environment and Water* [2024] FCAFC 56, [192]-[193]; Department of Sustainability, Environment, Water, Population and Communities 2010, *'Indirect consequences' of an action: Section 527E of the EPBC Act*.

and that retaining water in the void, rather than discharging it to the Latrobe as before, "may have indirect implications for the long-term health of river systems and aquatic environments downstream of the site, such as the Gippsland Lakes Ramsar site".[46] Even if the narrower rule applied, its conditions would be met: the fill facilitates the supply to a major extent, and both the supply and its downstream effects were within ENGIE's contemplation, as the referral shows (s 527E(2)(e) to (g)). Whether the take is a substantial cause of those changes, alone or with water management and the other mines' takes, is a question of fact for the decision-maker, on the evidence.[47] It is the question Parts C and D answer and the EES did not ask [102]. A small share of mean annual flow does not settle it, because the take bites hardest in dry years, when Lake Wellington is already most saline [107], [108].

15. Listings made after the controlled action decision do not change this decision. A species becoming a listed threatened species, moving to a higher category, or becoming a listed migratory species after the decision of 20 February 2023 does not affect the decisions that follow it, including whether to approve the action and what conditions to attach.[48] The EES applies the statuses in force at the decision, and so does FoGL: the Dwarf Galaxias is assessed as Vulnerable, though it was moved to Endangered on 15 November 2023, and Latham's Snipe as a migratory species, though it has been listed as Vulnerable from 5 January 2024.[49] The same applies to the Southern Giant Burrowing Frog, assessed as the Vulnerable Heleioporus australiacus, though from 5 March 2025 that listing was replaced by Endangered listings for both of its subspecies, and to species listed only since: Martin's Toadlet from 15 November 2023, the Swamp Skink from 23 March 2023, the Glossy Grass Skink from 20 February 2026 and the Australian Mudfish from 28 August 2026 (Table 8).[50] The later conservation advice is still the Commonwealth's current evidence on each species' habitat and sensitivity, and FoGL relies on it for that. Section 158A does not excuse the omissions set out at [144].

16. Each controlling provision has its own significance test. Every test is applied to all direct and indirect impacts, including "the total impact which can be attributed to the action over the entire geographic area affected, and over time" and "existing levels of impact from other sources". The criteria are guidance written for the referral decision, and are "not intended to be exhaustive or definitive" (Guidelines 1.1, p. 7).

At the approval stage the Minister must consider every relevant impact on the matters the controlling provisions protect, whether or not it is significant (ss 82, 136(1)(a), (2)(e)); significance still decides whether an offset is required [17] and whether approved conservation advice must be considered (s 139(2)). The Commonwealth's guidelines set out the tests, and FoGL applies them in Part D:[51]

Provision	An impact is likely to be significant if there is a real chance or possibility that the action will, among other things:	Applied at
A water resource (ss 24D, 24E)	change the hydrology or water quality of a water resource enough to reduce its current or future utility for third party users, "including environmental and other public benefit outcomes", or "to create a material risk of such reduction in utility occurring". Hydrology includes "the timing of variations in	D1

[46] ENGIE Hazelwood 2022, EPBC Act Referral 2022/09239, p. 17.
Environment Council of Central Queensland Inc v Minister for the Environment and Water [2024] FCAFC 56, [160], [181].
[48] *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 158A(1), (2), definitions of approval process decision and listing event; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-29.
[49] Department of Climate Change, Energy, the Environment and Water 2023, *Conservation Advice for Galaxiella pusilla (dwarf galaxias)*, p. 1; Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Gallinago hardwickii (Latham's snipe)*, p. 1.
[50] *List of Threatened Species Amendment (420) Instrument 2025* (Cth), items 1 and 2; Department of Climate Change, Energy, the Environment and Water 2023, *Conservation Advice for Uperoleia martini (Martin's toadlet)*, p. 1; State Wide Integrated Flora and Fauna Teams, *Swamp Skink* species page (swifft.net.au); Department of Climate Change, Energy, the Environment and Water 2026, *Protected Matters Search Tool report*, 10 November 2026.
[51] Department of the Environment 2013, *Significant Impact Guidelines 1.1*, pp. 5, 9, 10, 12, 13; Department of Climate Change, Energy, the Environment and Water 2022, *Significant Impact Guidelines 1.3*, ss 4.2 to 4.4, pp. 10-13.

Provision	An impact is likely to be significant if there is a real chance or possibility that the action will, among other things:	Applied at
	water quantity"; flow regimes include the "volume, timing, duration and frequency" of flows. A water quality change that "seriously affects the habitat or lifecycle of a native species dependent on a water resource" is one way an impact can be significant, where there is a risk that water quality objectives would be materially compromised (Guidelines 1.3, pp. 10 to 13)	
A Ramsar wetland (ss 16, 17B)	cause "a substantial and measurable change in the hydrological regime of the wetland" or in its water quality, or result in "the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependant upon the wetland being seriously affected" (Guidelines 1.1, p. 13)	D2
An endangered species (ss 18, 18A)	lead to a long-term decrease in the size of a population, "adversely affect habitat critical to the survival of a species", or "disrupt the breeding cycle of a population" (Guidelines 1.1, p. 9)	D3
A vulnerable species (ss 18, 18A)	do the same to an "important population", which "may include populations identified as such in recovery plans" (Guidelines 1.1, p. 10)	D3
A migratory species (ss 20, 20A)	"substantially modify ... destroy or isolate an area of important habitat", or "seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population" (Guidelines 1.1, p. 12)	D4

Four further requirements govern the decision itself. For ss 16 and 17B, the Minister must not act inconsistently with Australia's obligations under the Ramsar Convention (s 138; [125]). For ss 18 and 18A, the Minister must not act inconsistently with a recovery plan (s 139(1)(b); [127]). For ss 20 and 20A, the Minister must not act inconsistently with Australia's obligations under the agreement because of which the species is listed (s 140; [145]). And for every provision the Minister must take into account the principles of ecologically sustainable development, including the precautionary principle and inter-generational equity (ss 3A, 136(2)(a), 391), and must consider economic and social matters (s 136(1)(b)). The conditions FoGL seeks regulate the take and its timing; they do not require the void to be left unsafe (Part F; [188]). The 2025 amendments to ss 138 and 139 do not apply to a 2022 referral (Reform Act, Sch 1, item 690(1)(g)).

17. The 2012 Offsets Policy applies; the 2025 reforms' net gain test does not. The Scoping Requirements provide that "Proposed EPBC Act offsets (if required) must meet the requirements of the EPBC Act Environmental Offsets Policy (October 2012)".[52] The 2025 amendments' new approval tests, including the net gain test for residual significant impacts and the new compensation rules in s 134, apply only to decisions on referrals made on or after their commencement [13].[53] The National Environmental Standard (Environmental Offsets) 2026, in force from 21 August 2026, requires a net gain, but it applies through s 136A, which does not reach a 2022 referral.[54] Section 136A and the amendments to s 134 do not appear in the compilation of the Act current to 24 August 2026; they commence on proclamation or, failing that, 12 months after the Royal Assent of 1 December 2025 (Reform Act, s 2, table item 2). FoGL cites net gain only as the current national benchmark of best practice, not as the legal test. One reform does reach this decision: a condition requiring a restoration contribution charge can be attached to an approval given after it commences, whenever the referral was made, with the approval holder's consent.[55] It cannot be attached for a matter the Minister has declared under s 134AA (s 134(3AD)). Any such charge should be in addition to like-for-like offsets, not instead of them (Part H, B8).

18. Conditions can protect only the matters for which an approval has effect. A condition must be necessary or convenient for protecting, or repairing or mitigating damage to, a matter protected by a provision of Part 3 for which the approval has effect.[56] Conditions for the four FFG-listed species whose local populations the EES says may be significantly affected (Lewin's Rail, the

[52] Department of Transport and Planning 2023, *Scoping Requirements*, s 4.3, p. 21.
[53] *Environment Protection Reform Act 2025* (Cth), Sch 1, item 690(1).
[54] Environmental Defenders Office 2026, *Explainer: How the first four EPBC Standards work*.
[55] *Environment Protection Reform Act 2025* (Cth), Sch 1, items 229, 712; s 2, commencement table, item 2.
[56] *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 134(1), (2).

Australian Little Bittern, the Glossy Grass Skink and Flinders Pygmy Perch) therefore belong in the Victorian approvals, including for the skink, listed as Vulnerable under the EPBC Act only after the decision [15]: the planning scheme amendment's Environmental Management Plan and the Environmental Management Framework (Terms of Reference, cl 28(e), (f); Part H, V1 to V5), and the Declared Mine Rehabilitation Plan, which is approved separately and which the IAC does not examine (cl 8). The Commonwealth's Outcomes-based Conditions Policy supports conditions on "something which directly supports conservation outcomes for the protected matter and is capable of specific measurement" where the outcome itself is hard to measure;[57] most of the conditions in Part H are framed that way. Within the limit in s 134 the power is wide. The protection need not be protection from the action, and the damage need not be caused by it (s 134(1)(a), (b)). A condition requiring activities not reasonably related to the action, or a financial contribution, needs the holder's consent (s 134(3A)). A condition may also require compliance with conditions in a State instrument as in force from time to time, even one that does not yet exist when the approval takes effect (s 134(3)(c), (3C)).

19. The EES's evaluation objectives reach the matters the controlling provisions protect. The water objective covers "existing and potential future values downstream of the project area";[58] the biodiversity objective covers listed threatened species and their habitat, and offsets "consistent with state and Commonwealth policies".[59] The table maps each to the provisions, to the Points in the submission in brief, and to this evidence:

Evaluation objective	Controlling provision	Points	Evidence
Water resources and environmental values	A water resource (ss 24D, 24E)	1 to 8	Parts B and C; D1
Water resources and environmental values; biodiversity	A Ramsar wetland (ss 16, 17B)	9 to 13	D2; Table 4; Annex 1
Biodiversity and ecological values	Listed threatened species and communities (ss 18, 18A)	14, 15	D3; Table 8
Biodiversity and ecological values	Listed migratory species (ss 20, 20A)	16	D4; Table 8
Biodiversity (offsets); water (avoid, then minimise)	All four: avoidance, mitigation and offsets	17	D5; Part G
Water resources and environmental values	None: the Victorian levers that act on the take	18	Part F; Part H, [216] to [222]

A5 The chain of effects

20. One chain of effects runs through all four controlling provisions. The take, from Moondarra and, if the pit lake is connected, from Morwell River flood flows, reduces the flows and freshes in the Tyers, the Latrobe and the estuary (Part C). Fewer and shorter freshes and floods remove the cues the site's fish migrate and spawn on, weaken the connections between the river, its wetlands and the estuary, lengthen the drying of the lower Latrobe wetlands and raise Lake Wellington's salinity ([98] to [114]; [117] to [121]). Those changes reach the bittern, the Grayling, the frogs, the shorebirds and the site's native fish (D2 to D4). Works on site remove reedbeds, ponds and grassland that listed species use (D3, D4). Avoidance, mitigation and offsets cut across all four provisions (D5), and the Victorian levers, a cap, a drought pause and a Water Act instrument, act on the take itself (Part H).

[57] Department of the Environment 2016, *Outcomes-based Conditions Policy*, p. 7.
[58] Department of Transport and Planning 2023, *Scoping Requirements*, s 4.1, p. 16.
[59] Department of Transport and Planning 2023, *Scoping Requirements*, s 4.3, p. 19.

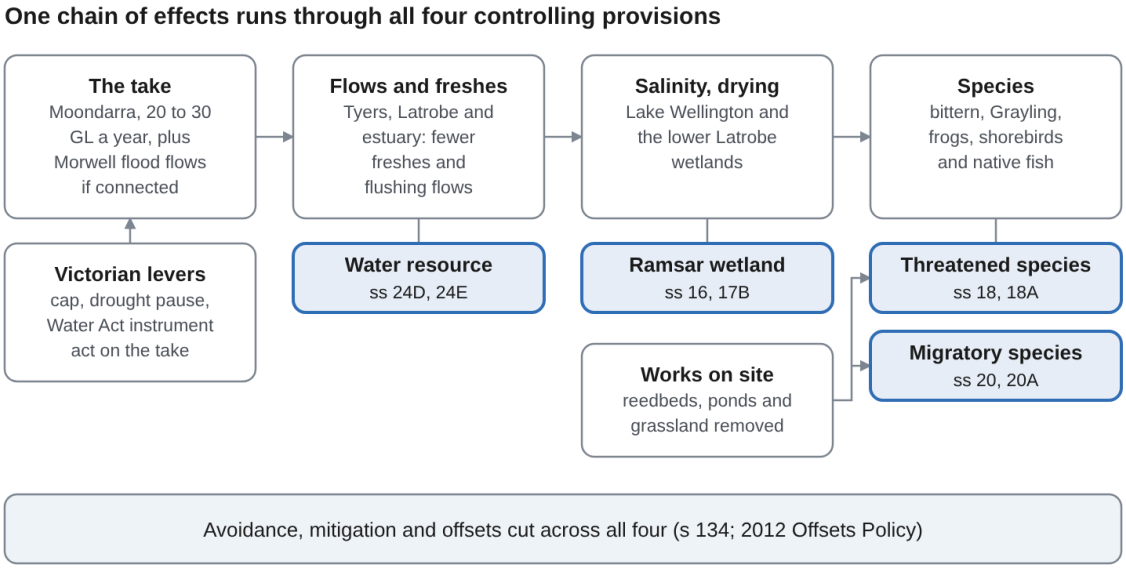


Figure 1. The chain of effects. The take reaches the Ramsar site and the species that depend on it through flows, salinity and drying; works on site remove habitat directly. The shaded boxes are the controlling provisions each link engages.

21. Altering river flows and wetland water regimes is a listed threatening process in Victoria and New South Wales, and the EES does not name it. Victoria's list of potentially threatening processes, current to July 2026, includes "Alteration to the natural flow regimes of rivers and streams" and "Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing".[60] In recommending the second in 2003, the Scientific Advisory Committee found that "The modification of natural water regimes is a frequent degrading process in wetlands", including "the diversion of water away from wetlands". It named "River regulation and water extraction for agriculture and industry" among the most common threats, and among their results "a reduction in size or period of inundation of remaining wetland habitat", "disrupted waterbird breeding cycles eg. early cessation of breeding as a result of reduced flooding", "reduction in the frequency of breeding and migration cues for in-stream fauna" and "increased salinity". Bitterns, the Swamp Skink and the Growling Grass Frog are among the FFG-listed taxa it found "directly affected", and the Herb-rich Plains Grassy Wetland (West Gippsland) Community among the communities "likely to be affected".[61]

New South Wales has listed "Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands" as a key threatening process since 2002, as "a major factor contributing to loss of biological diversity and ecological function in aquatic ecosystems, including floodplains". Its determination describes the process as "changing the frequency, duration, magnitude, timing, predictability and variability of flow events", reaching "the flow of freshwaters into estuaries", with water extraction among its causes, and warns that "Disruption of ecological processes may continue long after initial flow alteration".[62] The Commonwealth has no matching listing, but not because the process was found harmless: its committee found the nominations' names and descriptions "inadequate to appropriately identify and define the processes", said they "could not be assessed", and intended "to follow up ways to improve the nominations".[63] The absence of a key threatening

[60] Department of Energy, Environment and Climate Action 2026, *Flora and Fauna Guarantee Act 1988 – Potentially Threatening Processes List*, July 2026.
[61] Scientific Advisory Committee, Flora and Fauna Guarantee 2003, *Final Recommendation on a Nomination for Listing: Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing* (Nomination No. 650), 11 November 2003, pp. 1-4.
[62] NSW Scientific Committee 2002, *Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands: key threatening process listing, Final Determination*, paras 1, 2, 4, 5.
[63] Threatened Species Scientific Committee, *Six key threatening processes of rivers and streams*, advice to the Minister for the Environment and Heritage (web page last updated 3 October 2021), paras 1, 3.

process listing does not put the take outside the EPBC Act: each controlling provision's test applies to the impacts themselves [16].

The EES describes the process without naming it. It records that water resource development has reduced Latrobe and Thomson flows "affecting all components of the flow regime", and that the fast fill would reduce the frequency of flows meeting the recommendations "across the whole flow regime" in the lower Tyers. It treats the removal of its own operational ponds as potentially threatening processes under the FFG Act, but applies neither listed process to the downstream wetlands whose water regime the take alters.[64] The Scoping Requirements asked it to describe "any other threatening processes that may affect biodiversity values" and to assess cumulative effects with "other threatening processes in the region".[65] Where the listed processes meet this project:

Element of the listed processes	What the listings say	What the take does	Where
Freshwater inflows: magnitude, timing and duration	"changing the frequency, duration, magnitude, timing, predictability and variability of flow events"; "the flow of freshwaters into estuaries" (NSW)	Fewer freshes and flushing flows in the Tyers, the Latrobe and the estuary; no test of timing or duration	Part C; [60], [117]
Wetland hydroperiods	"a reduction in size or period of inundation of remaining wetland habitat" (Victoria)	Longer drying of the lower Latrobe wetlands, never computed as duration	[95] to [104]
Salinity and the freshwater-saltwater gradient	"increased salinity" (Victoria)	A more saline Lake Wellington; the salt wedge returns when flushing flows stop	[106] to [114]; [120]
Breeding and migration cues	"reduction in the frequency of breeding and migration cues for in-stream fauna"; "early cessation of breeding as a result of reduced flooding" (Victoria)	No test timed to when the site's fish migrate and spawn	[118], [121]; [134]
Connectivity and instream structures	"Prevention of passage of aquatic biota as a result of the presence of instream structures" (Victoria's list); "increased separation and isolation of remaining wetland habitat" (Victoria)	The Morwell River connection's structures and fish deterrents; movement between wetlands restricted	[70]; [135]
Draining and filling of wetlands	"Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing" (Victoria's list)	Removal of ponds and Tall Marsh on site, which the EES accepts is a listed process	[132], [146]
Cumulative and lasting effects	"Disruption of ecological processes may continue long after initial flow alteration" (NSW)	Three mines filling from one river; top-up in perpetuity	[71] to [75]; [138]

Part B: The baseline and the take

Finding sought. The EES assesses only the increment over a baseline that already contains a 20 GL a year take, and the take is not bound by the conditions the State applies to the other two mines ([211](a), (b), (o); Points 2 and 3). Headline issue 1.

In short: the EES measures the project against a baseline that already contains most of the take, and the take is free of the conditions the State applies to the other mines.

The objective concerns effects on values; the assessment measures an increment

[64] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, pp. 11-15, 11-31; Chapter 15, p. 15-24.
[65] Department of Transport and Planning 2023, *Scoping Requirements*, s 4.3, p. 20.

22. The water objective asks what the project does to values, not which version of it is worse. The evaluation objective is to avoid and, where avoidance is not possible, minimise adverse effects on water resources and their environmental values over the short and long term. Those values include downstream values and cultural, recreational and agricultural uses.

23. A baseline is orthodox; the question is what it contains. The Scoping Requirements call for change to be assessed against the existing environment, modelled "with the current allocations, extractions and uses of groundwater and surface water".[66] Technical Report D (catchments, rivers and wetlands) instead assesses the difference between versions of the project, considering change "rather than the absolute level of risk".[67]

24. The baseline already contains the take. For catchments, rivers and wetlands, the no-project world is one in which Hazelwood takes 20 GL/yr from Moondarra until the void reaches RL +45 m, then 5 GL/yr indefinitely to replace evaporation.[68] Technical Report D labels its baseline column "Unconnected Slow / Current".[69]

FoGL accepts that about 20 GL/yr is being taken now, as the EES[70] and the IESC say.[71] The objection is to what that take is:

- **It is filling the void.** With 12 GL/yr of retained groundwater, "the mine void is gradually accumulating water at the rate of around 32.5 GL per year". That is enough to fill the remaining 467 GL "in approximately 15 years".[72] The IESC described the pit as "filling", and gave the baseline a 15-year fill time.[73]
- **It was built to fill the void.** ENGIE's 2021 referral describes two pipelines, and what the EES calls fire protection was designed to end in the pit lake:[74]
    - a 25 GL/yr pipeline to the fire service tanks, whose water is "fed through the reticulation systems into the Mine void as a fire mitigation measure, and thereafter retained in the Mine lake";
    - a 20 GL/yr pipeline from Moondarra "directly to a water inlet structure in the Mine void".
- **It is recent.** Water has been retained in the void only since late 2021, after the 2020 studies at [3]. Before that, supply after closure was for fire protection "when there is a surplus".[75] The State's water accounts bear this out. Gippsland Water's take from Moondarra averaged 45.8 GL a year in 2015-16 and 2016-17, then fell to between 32.5 and 35.2 GL in each of the four years after closure. It rose to 47.1 GL in 2021-22, when retention began, and has been 43.3 to 51.9 GL since.[76] Gippsland Water said in 2018 that the closure had given it "a surplus of water in the Latrobe system".[77]
- **It is the project as described.** The Minister for Planning's decision requiring this EES describes the lake as made "using approximately 637GL of water across a period of between 10 and 35 years", with water put into the void "using predominately groundwater, surface

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[66] Department of Transport and Planning 2023, *Scoping Requirements, Hazelwood Mine Rehabilitation Project Environment Effects Statement*, p. 16.
[67] ENGIE Hazelwood 2026, *Technical Report D*, p. 7.
[68] ENGIE Hazelwood 2026, *Attachment IV: Modelling Assumptions for Groundwater and Surface Water Assessments*, Table 3-1, p. 19; ENGIE Hazelwood 2026, *Technical Report D*, pp. 53-54.
[69] ENGIE Hazelwood 2026, *Technical Report D*, Table 71, p. 181.
[70] ENGIE Hazelwood 2026, *Attachment IV*, p. 19; ENGIE Hazelwood 2026, *Technical Report B: Water Resource Use and Regulation*, p. 95.
[71] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 6.
[72] ENGIE Hazelwood 2026, *Technical Report D*, p. 53.
[73] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, Context and Table 1, p. 7.
[74] ENGIE Hazelwood 2021, Referral 2021-R06, p. 7.
[75] ENGIE Hazelwood 2026, *Technical Report B*, p. 67.
[76] Department of Environment, Land, Water and Planning, *Victorian Water Accounts* 2015-16 to 2020-21, Latrobe basin, Tables 6-86 and 6-88; Department of Energy, Environment and Climate Action, *Victorian Water Accounts* 2021-22 to 2024-25, Latrobe basin, Table 5; Gippsland Water 2018, *Annual Report 2017-18*, p. 71.
[77] Gippsland Water 2018, *Annual Report 2017-18*, p. 19.

water and any other approved water sources". ENGIE's EPBC referral says the project "requires the continued use of surface water resources during filling of the Mine void".[78]

- **It rests on emergency works, not a filling approval.** Retention began when the 2021 emergency amendments to MIN5004 for the Morwell River Flood Diversion, conditions 15A to 15C, required the mine-floor pumps to be decommissioned.[79] The 2019 Work Plan Variation for the "first stage of mine fill" was never approved. Chapter 5 says the emergency approvals "do not determine the final rehabilitation outcome".[80]
- **It is not a stability requirement.** In the EES's other baseline, for groundwater and the pit lake, the void is held at RL -7 m "using groundwater extraction only", and "surface water take would cease".[81]
- **It is not the State's counterfactual.** In the State's water study, the "do-nothing scenario" is one "whereby surface water use for power generation declines over time as each mine site is closed", and filling, Hazelwood's included, is shown as a separate demand.[82] The Strategy's water figure likewise counts power generation use at Hazelwood only until it closed in 2017.[83] DELWP treated supply for filling as needing "the Minister for Water's (or delegates) approval of an application for water for this purpose" [28].

This take fills the void without the approvals the project needs, at nearly twice Hazelwood's net historic use [29]. It is the first 20 GL/yr of the project, and the EES has adopted it as the counterfactual instead.[84]

25. On the proponent's own schedule, retention without approval delivers the full pit lake. About 170 GL is assumed to be in the void when filling starts, leaving about 467 GL of the 637 GL pit lake to fill.[85] The EES assumed RL -7 m at the start of 2026. That date "has now passed",[86] and the EES says nothing of the take in the meantime. The draft DMRP calls the retention "Incidental filling of pit". It lists "Retention of water volumes (in absence of final landform approval)" as running from 2017 to "Milestone 2: Dec-35", when the pit lake is full, with status "Ongoing".[87] Attachment IV dates retention from late 2021. The State's water accounts point the same way: Moondarra take stayed between 32.5 and 35.2 GL a year until 2020-21 [24]. The RL +45 m concept put to the regulator in 2020 "was not ultimately approved by ERR".[88] The IAC should establish the current void level, and the authority on which surface water is retained above RL -7 m (Q5).

[78] Minister for Planning 2022, Reasons for decision under the Environment Effects Act 1978, referral 2021-R06, p. 1; ENGIE Hazelwood 2022, EPBC Act Referral 2022/09239, p. 17.
[79] ENGIE Hazelwood 2021, *Referral 2021-R06 under the Environment Effects Act 1978: Hazelwood Rehabilitation Project*, Attachment 2.
[80] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-4.
[81] ENGIE Hazelwood 2026, *Attachment IV*, p. 20.
[82] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 29; Figures 9 and 10, pp. 30-31.
[83] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, Figure 2 and note 14, p. 13.
[84] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 6, Table 6-3, p. 6-6.
[85] ENGIE Hazelwood 2026, *Attachment IV*, p. 21; ENGIE Hazelwood 2026, *Technical Report D*, p. 2.
[86] ENGIE Hazelwood 2026, *Attachment IV*, pp. 20, 5.
[87] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 8, p. 4; Chapter 16, Table 16.2, p. 6.
[88] Ibid., Chapter 5, p. 3.

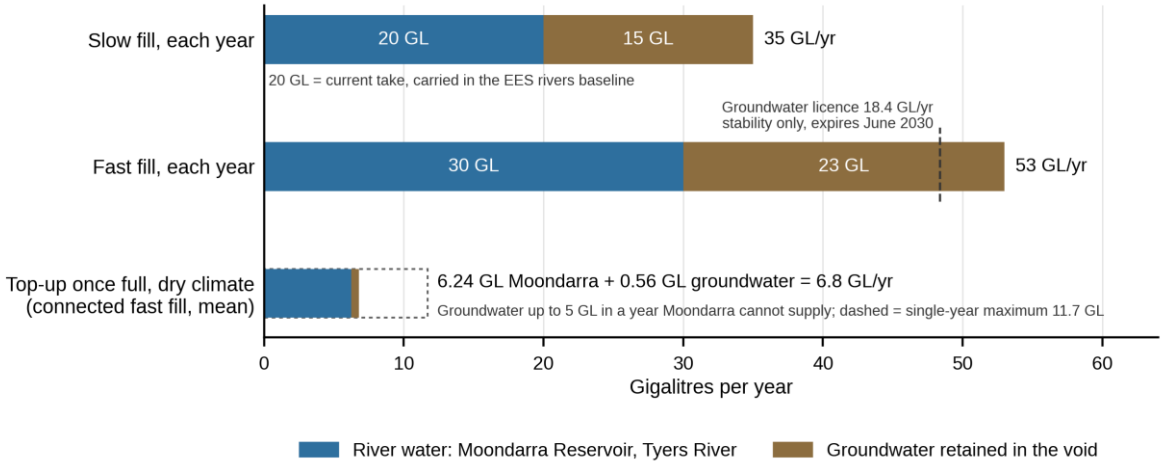


Figure 2. Where the water comes from. Fill: annual Moondarra take and retained groundwater for the slow and fast fill; the slow-fill river take is the take carried in the rivers baseline [24]. Top-up, for the connected fast fill under the dry climate: a mean of 6.24 GL from Moondarra and 0.56 GL of groundwater;[89] *groundwater can reach 5 GL in a year when Moondarra cannot supply,*[90] *and combined top-up peaks at 11.7 GL.*[91] *The renewed groundwater licence authorises 18.4 GL/yr for stability, not filling, to June 2030 [45]. Not shown: Morwell flood flows in the connected option, and the Cooling Pond's one-off 17.5 GL. The pit lake holds 637 GL, about 170 GL of it assumed to be in the void when filling starts.*[92]

26. The IESC saw the consequence: only the extra 10 GL/yr is assessed. Because the rivers baseline already contains a 20 GL/yr take, the downstream results "are only assessed for the additional 10 GL/y take".[93] The proponent replied that "there is no 'baseline scenario'", though impacts were assessed relative to "appropriate 'baseline conditions'".[94] That restates the problem. The baseline conditions for rivers are those in [24], against which only the extra 10 GL/yr can show, and the final EES kept the same baseline. The IESC's Table 2 notes that "a baseline scenario or the slow-fill take component from Moondarra Reservoir has not been assessed". It marks the effects on the Tyers, and on saline intrusion into Sale Common and Heart Morass, as inferred, not assessed.[95] Technical Report D says the same of itself: only "use in excess of the baseline conditions" is assessed.[96]

[89] ENGIE Hazelwood 2026, *Technical Report C1*, Table 10-4, p. 115.
[90] ENGIE Hazelwood 2026, *Attachment VI: Response to IESC Advice*, Appendix F, p. 6.
[91] ENGIE Hazelwood 2026, *Technical Report C1*, Table 10-6, p. 117.
[92] ENGIE Hazelwood 2026, *Attachment IV*, p. 21.
[93] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 6.
[94] ENGIE Hazelwood 2026, *Attachment VI*, p. 3.
[95] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, Table 2, p. 9.
[96] ENGIE Hazelwood 2026, *Technical Report D*, p. 73.

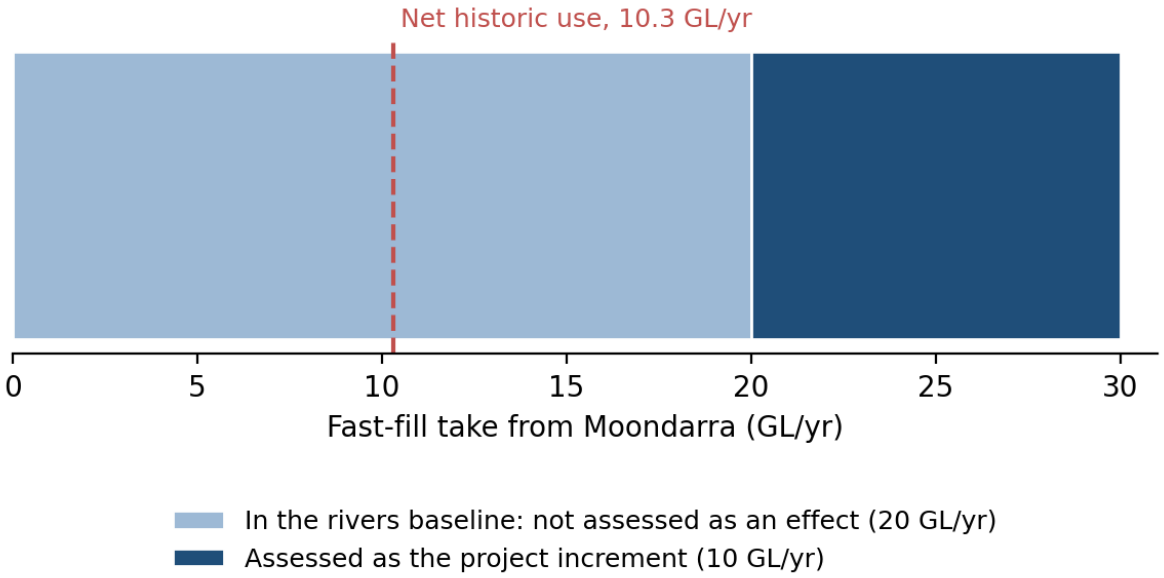


Figure 3. The take the EES assessed. Of the 30 GL/yr fast-fill take, the first 20 GL/yr sits in the rivers baseline, so only 10 GL/yr is assessed as an effect of the project.[97] *The dashed line marks Hazelwood's net historic use, the State's benchmark.*[98]

27. In each discipline, the counterfactual used narrows the project's effect. For groundwater and pit lake water quality, the baseline is a pit lake held at RL -7 m, in which "surface water take would cease".[99] For rivers, the baseline contains the take [24].

28. No study the EES relies on assesses the first 20 GL/yr either.

- **Alluvium 2023.** The cumulative study, prepared for the LVRRS Amendment, carries Hazelwood's 20 GL/yr in its baseline as "Gippsland Water additional notional future industrial demand". It sized that demand on the "historical average monthly pattern of use by Hazelwood and Energy Brix".[100]
- **DELWP 2020.** It treated 20 to 22 GL/yr as supply that could be made available "subject to the Minister for Water's (or delegates) approval of an application for water for this purpose", to "all mine operators in a sequential manner over time". That figure reflected supply to Hazelwood and to Energy Brix, a briquette works since closed that drew about 6 GL/yr. Hazelwood's own use was 14.0 GL/yr gross and 10.3 GL/yr net.[101]

The State assessed takes of that size only in the abstract. In 2020 it concluded they should be limited to net use and halted in drought; its 2023 guidance allows up to gross historic use, but only with conditions [29].

29. The State's own benchmark answers the question the EES did not ask.

- Over 2006/07 to 2018/19, Hazelwood diverted 14.0 GL/yr and returned 3.7 GL/yr: a net use of 10.3 GL/yr.[102] The State's table records Hazelwood's entitlement as "Supply by agreement contract amounts", and gives the same 14.0 GL for the 2006/07 drought year as for the average, so the gross figure may be a contract volume rather than metered use. The fall of about 12 GL a year in Moondarra take after closure is of the same order [24].

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[97] ENGIE Hazelwood 2026, *Attachment IV*, Table 3-1; Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 6.
[98] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, Table 10.
[99] ENGIE Hazelwood 2026, *Attachment IV*, p. 20.
[100] ENGIE Hazelwood 2026, *Technical Report D*, Table 108, p. 259.
[101] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, pp. 27, 19; Table 10, p. 20.
[102] Ibid., Table 10, p. 20.

- The State's 2020 studies capped filling at net use, to be restricted or halted in dry conditions, and DEECA found that take at net use adds no overall risk to environmental and Traditional Owner values [3].
- The Minister has initiated a reduction of the Latrobe permissible consumptive volume so that "water use does not exceed what has been taken by power generators on average in recent decades".[103]
- The Minister has also signalled a staged cut to the consumptive entitlements in the major reservoirs, Moondarra among them, from about 180 GL to under about 120 GL, with more once the voids are filled.[104]

Against that benchmark, the slow fill is 1.9 times net historic use and the fast fill 2.9 times (Table 1). Against gross historic use of 14.0 GL/yr, which the State allows only with conditions [166], they are 1.4 and 2.1 times. FoGL relies on the benchmark because it is the State's. It does not seek the return of Hazelwood's former discharges [41].

The cap principle and the conditions gap

30. Hazelwood carries none of the conditions the State has given legal force for Loy Yang. The LVRRS Amendment and DEECA's 2023 guidance set conditions on surface water taken for mine rehabilitation, and Gazette S 703 (12 December 2025) applies them to Loy Yang:

Condition	Loy Yang (Gazette S 703)	Hazelwood
Instrument	Bulk entitlement under the Water Act, held by AGL companies the Order defines as generation companies under the Electricity Industry Act 2000	Private supply agreement with Gippsland Water
Season	Take only from 1 June to 30 November[105]	None
Low-flow floor	No take of unregulated river flow unless the Latrobe at Willow Grove is at or above 447 ML/day;[106] stored water may still be released and taken within the release cap	None of its own; Gippsland Water's entitlement carries passing flows [220]
Storage releases	Releases from its Blue Rock share capped at 26,500 ML a year in the final phase[107]	None
End date	"No rights to take or use water are provided under this Order after the end date of Mine Rehabilitation Phase 3",[108] which is 1 December 2065 at the latest	None; top-up in perpetuity
Use	Only "consistent with an approved Declared Mine Rehabilitation Plan and any necessary approvals under the Environmental Protection Act 2017"[109]	No equivalent term
Price	$230/ML in 2025 dollars, paid on the full annual volume of 35.8 GL whether or not it is taken[110]	Not disclosed
Reporting	Annual report to the Minister by 1 August[111]	None

31. Hazelwood was left out of the State's process because it had a contract. DEECA excluded it on a ground that concedes part of the proponent's case: ENGIE "already has access to

[103] Department of Energy, Environment and Climate Action 2026, *Bulk entitlements (webpage)*.
[104] ENGIE Hazelwood 2026, *Technical Report D*, p. 69.
[105] Minister for Water 2025, *Bulk entitlement order for Loy Yang mine rehabilitation, Victoria Government Gazette No. S 703*, cl 15(d)(i).
[106] Ibid., cl 15(d)(iii).
[107] Ibid., cl 15(d)(ii).
[108] Ibid., cl 4.
[109] Ibid., cl 17.
[110] Ibid., Schedule 3.
[111] Ibid., cl 22.

surface water for mine rehabilitation under Gippsland Water's existing bulk entitlement".[112] The rest of the record follows:

- LVRRS measures were identified for Yallourn and Loy Yang "rather than the Hazelwood Mine".[113]
- "No further approvals are required, or sought".[114]
- The EES models the other mines with the conditions and Hazelwood without them.
- A DEECA briefing table leaves Hazelwood's net historical take blank, noting its "confidential supply by agreement (SBA) arrangement with Gippsland Water".[115]

Access under a contract is not assessment under the Act. The study DEECA relied on excluded Hazelwood's water use from its scope. It recorded that ENGIE's agreement "is currently subject to the outcomes from an Environment Effects Statement process".[116] This EES is that process.

The proponent may say the comparison with Loy Yang is not like for like. The generators' entitlements "can be used for the purposes of electricity generation works, this use does not extend to mine rehabilitation", so Yallourn and Loy Yang need new instruments, while Gippsland Water's entitlement is for urban and industrial supply.[117] That is a difference of form, not of effect. The State's stated reason for the conditions applies to every mine: that water taken for rehabilitation "will not diminish the water entitlements of existing water users and values in Gippsland".[118] Its guidance covers Yallourn and Loy Yang, with a note that ENGIE "has entered into a Supply by Agreement with Gippsland Water".[119]

32. Only Hazelwood would take its water without a statutory instrument of its own.

- Loy Yang holds a rehabilitation bulk entitlement [30].
- Yallourn has applied for one, with submissions invited in June and July 2026.
- The approvals this project requires include a take and use licence and renewal of the groundwater licence, but none governs the Moondarra take.

The State's guidance is that conditions for future water access "will be determined following the water access application process set out under the Water Act 1989 and after community and stakeholders have had their say".[120] For Hazelwood's Moondarra supply, that process has not been engaged, and the proponent cannot engage it. Only an Authority may apply for a bulk entitlement, and Hazelwood's generation licence was revoked on 28 June 2017 [218].

Every other route to rehabilitation water is public. An application for surface water for mine rehabilitation "under section 36 or 51 of the Water Act 1989 would be advertised and submissions invited".[121] It would be decided on the s 40(1) matters, including "the requirement to protect the environment, including the riverine and riparian environment", and the State wants such applications made early so that decisions "can better take into account the cumulative regional impacts of access

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[112] Department of Energy, Environment and Climate Action 2023, *Explanatory note on surface water access*, p. 6; p. 2, note 1.
[113] ENGIE Hazelwood 2026, *Technical Report D*, p. 18.
[114] Ibid., p. 3.
[115] Department of Energy, Environment and Climate Action 2024, *Documents released under freedom of information decision 5995 (Latrobe Valley Regional Rehabilitation Strategy Implementation Actions 3 to 5)*; released as "unapproved interim working draft analysis".
[116] Alluvium 2023, *Type of conditions that could apply to water access for Latrobe Valley mine rehabilitation and associated risks and benefits*, pp. ii, note 3, 3.
[117] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, p. 17; Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, Table 3, p. 8.
[118] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, p. 16.
[119] Ibid., p. 16, note 12.
[120] Department of Energy, Environment and Climate Action 2026, *Latrobe Valley Regional Rehabilitation Strategy (webpage)*.
[121] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, p. 21.

to water across all 3 Latrobe Valley mines".[122] The conditions on access "will be determined by the Minister for Water, following a mine licensee's application for access to water for mine rehabilitation as part of the statutory process".[123] Hazelwood's supply goes through none of these steps. The State expected this EES to "provide an integrated and transparent assessment of the project's potential environmental impacts".[124] For the Moondarra take, it is the only public assessment.

33. In drought, the conditioned mines must stop taking; Hazelwood need not. Its supply is a commercial agreement with "no minimum supply commitment", under which Gippsland Water gives priority to other contracted users so that "other water users are protected".[125] Chapter 25 says the environment can also be prioritised. The clause has not been exhibited, so neither account can be tested. Members of the public asked the Commonwealth that "certainty should be provided to other water users".[126] They have it; whether the environment is protected depends on a clause that has not been exhibited. Gippsland Water projects supply available nine years in ten under a dry climate falling from 16.6 GL/yr in 2020 to 2.48 GL/yr by 2040.[127]

34. A 1997 conversion order is not an assessment of filling a mine void. The EES rests on Gippsland Water's entitlement, granted "in 1997 through a conversion order".[128] From it the EES reasons:

- that impacts are "already factored into the prevailing system for allocation of water";[129]
- that ecosystem impacts "would not be anticipated";[130]
- that the sustainable-level test is answered.

FoGL has obtained the order.[131] It is purpose-neutral: Gippsland Water may take up to 62,000 ML a year, averaged over two years, and release water "as it sees fit" (cls 6.1, 9). FoGL does not contend that supply for the fill falls outside its terms. What matters is what the order did not consider:

- It was made under ss 43 and 47 and records nothing the Minister considered (cl 2). It converted the right as it stood: "All of the Authority's entitlement to take water from the waterway at Moondarra Reservoir is converted to a bulk entitlement" (cl 5).
- Its environmental obligations concern the works: a program for the bed and banks near them, silt, water quality in them, and releases and flood flows through them (cl 12.1). None concerns the effect of the take downstream.
- Its passing flow below the dam is the lesser of 30 ML/day and natural flow, falling to 8 ML/day when inflow over the previous six months is 25,000 ML or less (cl 8.1). The 2020 flow study recommends baseflows of 100 and 200 ML/day in the lower Tyers [220].
- Its 2011 amendment, a minor amendment under s 45(1), added an emergency diversion point and left the volume unchanged.[132]

No mine-filling demand existed in 1997. Reviewing the mine's prior approvals, the Commonwealth delegate noted that "the environmental impacts of filling the mine void was not considered or approved under prior approvals", and that filling was therefore "not an approved activity under either

[122] Ibid., p. 19.
[123] Ibid., p. 17.
[124] Ibid., p. 8.
[125] ENGIE Hazelwood 2026, *Technical Report B*, p. 99.
[126] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons for a Decision on Controlled Action, EPBC 2022/09239*, para 26.
[127] ENGIE Hazelwood 2026, *Technical Report B*, Table 7-7, p. 63.
[128] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-36.
[129] ENGIE Hazelwood 2026, *Attachment VI*, p. 13.
[130] ENGIE Hazelwood 2026, *Attachment I: Landform and Water Supply Alternatives Assessment*, p. 77.
[131] Minister for Water 1997, *Bulk Entitlement (Moondarra Reservoir) Conversion Order 1997*, Victoria Government Gazette No. G 37, 18 September 1997, pp. 2597-2604.
[132] Minister for Water 2011, *Bulk Entitlement (Moondarra Reservoir) Minor Amendment 2011*, Victoria Government Gazette No. G 16, 21 April 2011, pp. 905-906, cls 2, 3.

state legislation or the EPBC Act".[133] Technical Report D says the entitlement was granted "after considering each of the matters in s 40".[134] The order records no such consideration (Q11).

The Water Act draws the same line, now and in the version in force in 1997:

- Section 40, and the s 42(2) bar on granting an entitlement unless the Minister considers it "not likely to have any significant impact" in terms of those matters, apply to new applications under s 36(1).
- A conversion under s 47 turns on comments from directly affected entitlement holders (ss 47(3), (4)).
- Section 43 only sets out what an Order may contain.

Attachment IV's claim that environmental impacts were considered under "sections 43 and 47",[135] and Technical Report D's that the conversion conditions "overlap" with s 40,[136] do not meet that.

The State's own planning treats rehabilitation water as outside existing allocations, which answers the EES's claim that its impacts are "already factored into the prevailing system for allocation of water":

- the Sustainable Water Strategy's account of the region's water needs does "not consider potential water sources for mine rehabilitation in the Latrobe Valley";[137]
- the 2020 LVRRS treats any rehabilitation take as a decision still to be made, "should the Minister for Water decide to permit the take and use of water for the purpose of mine rehabilitation", and expects licensees to "apply for water entitlements for mine rehabilitation purposes";[138]
- DEECA's 2023 guidance records that "Decisions on water access do not predetermine the outcome of a potential EES process".[139]

Nor is an entitlement the State's measure of what a rehabilitation take may safely be. Chapter 9 says that supply within Gippsland Water's volumes "would not affect environmental entitlements or reduce availability for other entitlement holders",[140] and Chapter 25 that the order's conditions, including passing flows, "effectively set aside water for the environment".[141] That may be true of entitlements. It does not address the water the river receives because entitlements are not used in full, or the gap between passing flows and what the environment needs. The State's documents address both:

- the State set access for Yallourn and Loy Yang at historic use, "around 34GL per year (or approximately 35%) less than the current full water entitlement volumes",[142] having recorded that "The environment and other water users have benefited from these under-used water entitlements and return flows";[143]
- the 2020 cap was net use "because the power generators use less water than their entitlement volume and return large volumes of water to the river system (return flows)";[144]

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[133] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 42.
[134] ENGIE Hazelwood 2026, *Technical Report D*, p. 69.
[135] ENGIE Hazelwood 2026, *Attachment IV*, p. 13.
[136] ENGIE Hazelwood 2026, *Technical Report D*, p. 3.
[137] Department of Environment, Land, Water and Planning 2022, *Central and Gippsland Region Sustainable Water Strategy*, p. 12.
[138] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, pp. 13, 20, 27.
[139] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, p. 19.
[140] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 9, p. 9-18.
[141] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-36.
[142] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, p. 17.
[143] Ibid., p. 16.
[144] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, p. 20.

- across the system, "The average historical use under each bulk entitlement is much lower than the maximum annual entitlement volume";[145] Gippsland Water's Moondarra take has been between 32.5 and 51.9 GL a year since closure, against the order's 62 GL [24];
- DELWP found that supplying full entitlement and licence volumes for filling, rather than drought-year historic use, would have "unacceptable impacts on the reliability of supply to other existing water users and the environment";[146]
- the passing flows written into bulk entitlements fall short of what the environment needs: the minimum environmental flows recommended in the flow study "are typically higher than the passing flows that were specified in bulk entitlements";[147] below Moondarra, the order's 30 or 8 ML/day compares with recommended baseflows of 100 and 200 ML/day [220]; and
- the Strategy's water study found that, if dry conditions continue, "there is a risk of impacts if surface water is supplied for mine rehabilitation without conditions that protect other water users and the environment".[148]

These findings concern the generators' entitlements and the system as a whole, not Gippsland Water's entitlement in particular. Their reasoning does not depend on who holds the entitlement: water an entitlement permits but that has not been taken has stayed in the river system, and taking it for filling is a change to be assessed, not a use already accounted for.

The order authorises Gippsland Water to supply the fill. Neither the order nor the State's planning has assessed the effect of doing so. That is this EES's task.

35. The EES describes the contract more generously than its terms. The water resources report says the contract protects "other water users".[149] Elsewhere the EES imports the constraints of the entitlement it sits under:

Document	How it describes the supply arrangement
Technical Report B	"no minimum supply commitment"; supply prioritised so that "other water users are protected"
Technical Report B	"limitations imposed to ensure environmental conditions, community needs, and reservoir limits are respected"
Chapter 4	Supply varies where "climatic conditions dictate" or other users' needs require
Chapter 5	Supply "having regard to climatic or environmental conditions"
Attachment VI	An arrangement enabling "the environment to be prioritised"
Chapter 8	Supply may be "restricted or paused to protect the environment and ensure preferential supply for towns and priority industry"
Chapter 11	The agreement "enables surface water supply to other users and the environment to be prioritised"
Chapter 25	The agreement enables "the needs of other users, such as residential users and the environment, to be prioritised"
Technical Report D	Supply "may be reduced or paused due to climate or environmental conditions (e.g. drought)"

Passing flows on Gippsland Water's entitlement are not terms of Hazelwood's contract, and the clause has not been exhibited. Any decision to halt or reduce supply "would be made by Gippsland Water".[150]

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[145] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, Table 3, note 4, p. 9.
[146] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 29.
[147] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 20.
[148] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, Regional Water Study Synopsis Report, Key findings, p. 51.
[149] ENGIE Hazelwood 2026, *Technical Report B*, p. 99.
[150] ENGIE Hazelwood 2026, *Attachment VI*, p. 14.

36. The cumulative defence rests on conditions that bind every mine but this one. The EES's answer to three mines on one river is that the impact "would largely be mitigated by Gippsland Water managing supply". It adds that the LVRRS conditions on Yallourn and Loy Yang "would ensure that water resources across the Latrobe River system are adequately managed".[151]

What follows

37. Every conclusion of "no change" in the EES is a conclusion about the last 10 GL/yr. Two facts apply throughout:

- the comparison is with a baseline containing all of the slow fill and two thirds of the fast fill;
- the take is free of the conditions the State applies to the other mines.

The system is one the State had already found at its limit: "more fresh water for the environment is required", not less.[152] Risks to environmental and Traditional Owner values are already "high", and the system is "already experiencing flow stress".[153]

What FoGL seeks

38. FoGL requests that the IAC:

- direct the proponent to report the downstream effects of the full take, at 20 and 30 GL/yr, against current conditions without the take, and to identify any study assessing the first 20 GL/yr as an impact and produce the supply agreement's reduction clause and the annual volume supplied to the site since 2017 ([214], items 1 and 10);
- recommend that the cap be given effect through statutory instruments rather than a private contract, at net historic use unless the LVRRS conditions apply in full ([222](a), (e); condition 1); and
- find that the full take, not the increment, is the action for the purposes of Significant Impact Guidelines 1.1 and 1.3 ([224](a)).

Part C: Water resources and their environmental values

Finding sought. High-climate results were produced but kept out of the conclusions, and the post-1997 scenario was not run for the rivers. The model counts environmental water the river has not been given, and cumulative effects were removed from view. The connected pit lake has no discharge criteria for metals or nutrients, and the groundwater the fill relies on is not authorised ([211](c) to (h), (n); Points 4 to 7). Headline issues 1, 4 and 5.

In short: the EES runs the tests that matter, then leaves their results out of its conclusions; it assumes environmental water the river does not have; and it removes cumulative effects from view.

The take, the deficit, and what the fill depends on

39. Nothing ends Hazelwood's take. The project takes 20 GL/yr (slow fill) or 30 GL/yr (fast fill) from Moondarra Reservoir, with 15 or 23 GL/yr of groundwater retained in the void.[154] None returns to the river except what the connected pit lake spills over its weir [76]. Once full, the pit lake needs Moondarra top-up of 3.70 to 6.24 GL/yr on average for the connected fast fill,[155] for as long as it exists. The State ends all of Loy Yang's take, top-up included, by 1 December 2065.[156]

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[151] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 9, s 9.5.1, pp. 9-20 to 9-21.
[152] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. ii.
[153] Department of Energy, Environment and Climate Action 2023, *Explanatory note on surface water access*, p. 12; see also ENGIE Hazelwood 2026, *Technical Report D*, Table 109, p. 260.
[154] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, Table 4-4, p. 4-20.
[155] ENGIE Hazelwood 2026, *Technical Report C1*, Table 10-4, p. 115; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 10, Table 10-9, p. 10-23.
[156] Minister for Water 2025, *Loy Yang mine rehabilitation bulk entitlement, Gazette S 703*, cl 4, 5.

40. The source river is already short. The EES records a Latrobe environmental water shortfall of 129 GL/yr,[157] and minimum environmental demand went unmet in 15 of 21 years after 1997, against 3 of 22 before.[158] In 2020 the State found the environment's water in the Latrobe basin 48 GL/yr below the 2011 Strategy's estimate, while consumptive use's share rose from 21 to 24 per cent: "a disproportionate impact on the environment".[159] That finding obliges the Minister to act to restore the balance, and the Sustainable Water Strategy returns to the Latrobe and Tyers are the State's action [63].

41. The project also removes a return flow. Hazelwood discharged 14,099 ML to the rivers in 2017-18;[160] those discharges "have now ceased and do not form part of the baseline conditions".[161] FoGL does not seek their return, since the water was warm, alkaline and saline.[162] But losing about 14 GL/yr is a permanent hydrological change the EES books as baseline and never assesses. The proponent's 2022 referral treated it as a project effect with possible implications for the Ramsar site.[163] The Commonwealth's wetlands advice linked Lake Wellington's rising salinity partly to "reduced releases from the project site as the mine void fills".[164]

42. The lost return flow was water the river received in dry years. DEECA calls return flows "climate resilient", and found the LVRRS conditions "cannot offset the loss of incidental benefits" irrigators had from them.[165] The Ecological Effects Assessment also identified an unmodelled 15 per cent baseflow decline below the Morwell confluence.[166] Hazelwood's is not the only return flow the baseline absorbs [72]. WGCMA's 2026 strategy reaches the same view: "A further 15% reduction in baseflows can be expected when mine dewatering ceases", in addition to the reductions the 2020 study modelled.[167]

43. The fill depends on a supply the EES describes in conflicting ways.

Source	On Moondarra supply
Attachment VI; Chapter 11	20 and 30 GL/yr met "with 100% compliance", including under the Millennium Drought reference case
Technical Report C1	"approximately 95%" of 20 GL/yr under the dry scenario
Technical Report B	Under the 2040 dry scenario, 18.5 GL/yr, "less than the target rate of 20 GL/yr"
Technical Report B	Supply available nine years in ten under a dry climate falls from 16.6 GL/yr (2020) to 2.48 GL/yr (2040)
Technical Report B	Gippsland Water plans without Hazelwood because its water "is provided only when it is available"
Referral 2022	The agreement "provides no guarantees"; maximum "around 24.5GL per annum"; 8 GL minimum "not contractually guaranteed"

[157] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-12; ENGIE Hazelwood 2026, *Technical Report D*, p. 103.
[158] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 24.
[159] Department of Environment, Land, Water and Planning 2020, *Long-term Water Resource Assessment for Southern Victoria*, pp. 7, 77.
[160] Hale, J. et al. 2020, *Ecological Effects Assessment*, Table 6, p. 27.
[161] ENGIE Hazelwood 2026, *Technical Report D*, p. 139.
[162] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 27.
[163] ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239: Hazelwood Mine Rehabilitation Project*, p. 17.
[164] Commonwealth Environmental Water Office 2022, *Wetlands advice on referral 2022/09239*.
[165] Department of Energy, Environment and Climate Action 2023, *Explanatory note on surface water access*, p. 12.
[166] Hale, J. et al. 2020, *Ecological Effects Assessment*, pp. 31, 35.
[167] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 41.

The Commonwealth's Office of Water Science found "insufficient water in the Latrobe River system to meet the demands for filling the mine pit in the 15 – 20 year period", the system "already in deficit if all demands were to be met".[168]

The IESC found fixed assumptions about water availability undermine "confidence in the conclusions drawn, particularly as they relate to estimated filling times". The Moondarra and Morwell inflows were run as a fixed historic sequence, losing their correlation with local inflows.[169] Technical Report C1's dry 1901 to 1915 sequence answers the choice of sequence, not the lost correlation. "100% compliance" is a product of that method. The MLRA warned that, relying on local sources alone, filling "may exceed 30 years if water supplies are limited by drought and/or climate change".[170]

44. The interrupted fill has never been modelled, though every relevant document anticipates it:

- DELWP: fill times assumed "no interruption to supply" and "could be significantly under-estimated", and under dry conditions filling could become impossible without compromising other uses.[171]
- Attachment IV: the fill "could be significantly longer (such as during drought)".[172]
- Technical Report B: supply "may be limited or suspended ... during dry years", yet impacts were assessed on the project description "despite the likelihood of extended filling periods".[173]
- The project as scoped contemplates "a fill of up to 35 years under a worst-case scenario",[174] and the Minister described 10 to 35 years.[175] Technical Report D's longest fill is 17 years.[176]
- Technical Report D's drought measure has no trigger and awaits modelling of "the scale and duration of drought" ([196]).[177]

45. The renewed groundwater licence does not cover the fill as modelled, the drought fallback or the top-up. It allows groundwater for filling only to the level needed for safe and stable conditions, a level never agreed:

Use	The EES assumes	The licence allows
Fast fill	23 GL/yr,[178] still adopted after renewal	18.4 GL/yr, and not for filling beyond safe and stable levels[179]
Drought fallback	"increased groundwater usage (within the limits of the relevant groundwater licence)"[180]	No headroom: the fast fill already exceeds the licence
Top-up	M2 groundwater as the second source: about 0.5 to 0.6 GL/yr on average, up to 5 GL when Moondarra cannot supply[181]	Nothing: the licence expires on 30 June 2030, and the pit lake is expected full at the end of 2035

[168] Office of Water Science 2022, *Advice OWS 2022-051 on referral 2022/09239*, p. 2; Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 57.
[169] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 11; para 15.
[170] Mine Land Rehabilitation Authority 2022, *Hazelwood Rehabilitation Investigation Report*, p. 38.
[171] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, pp. iii, 30-31.
[172] ENGIE Hazelwood 2026, *Attachment IV*, p. 22.
[173] ENGIE Hazelwood 2026, *Technical Report B*, s 6.5, p. 47.
[174] Department of Transport and Planning 2023, *Scoping Requirements*, p. 4.
[175] Minister for Planning 2022, *Reasons for decision under the Environment Effects Act 1978, referral 2021-R06*.
[176] ENGIE Hazelwood 2026, *Technical Report D*, p. 58.
[177] Ibid., mitigation measure MM1, p. 272.
[178] ENGIE Hazelwood 2026, *Attachment IV*, Table 3-3, p. 23.
[179] Southern Rural Water 2025, *Statement of Reasons and licence conditions, Hazelwood Power groundwater licence WLE091664*, licence condition 3.
[180] ENGIE Hazelwood 2026, *Technical Report D*, mitigation measure MM1, p. 272.
[181] ENGIE Hazelwood 2026, *Attachment IV*, p. 24; ENGIE Hazelwood 2026, *Attachment VI*, Appendix F, p. 6.

46. Southern Rural Water excluded filling from the licence. It determined that using groundwater "solely for the purpose of filling the mine void beyond approved 'safe and stable' levels is not an approved use", and that any such use "would require a separate licence application and approval". It set 18,400 ML/yr, above the 11,000 to 12,300 ML/yr that had kept the void stable, "in recognition of uncertainties", applying "the precautionary principle".[182] ENGIE's application called the extension "bridging" until the EES is assessed, and gave its purpose as dewatering and depressurisation.[183] Its consultant set three ceilings below the fast fill's 23 GL/yr:

- M1 bore capacity of about 1.1 GL/yr, against the 3.2 GL/yr assumed;
- installed system capacity of about 18.3 GL/yr;
- the licence's 18.4 GL/yr.[184]

The draft DMRP still lists the approval it needs as renewal "to enable filling via groundwater pumping",[185] as ENGIE's 2021 referral did. Southern Rural Water's renewal excluded that purpose.

47. Calling RL +45 m the safe and stable level does not bring the fill within the licence. Southern Rural Water anticipated that argument: filling beyond the "approved" level needs a separate application, and the volume was set for stability, not for a fill. The EES nonetheless calls the renewed licence a "source of water for pit lake filling",[186] as Technical Report B had assumed. The regulator decided otherwise.

48. The top-up's groundwater use is the least examined.

- After passive inflows and, if connected, Morwell flood flows, Moondarra is the first purchased top-up source and M2 groundwater the second.[187] The proponent estimates 0.58 GL/yr on average under the high climate, and up to 5 GL in a year when Moondarra cannot supply.[188] Chapter 4 assumes the retained bores allow "a nominal extraction volume of 6GL/yr".[189]
- The IESC asked for a groundwater run of top-up extractions of up to 5 GL/y.[190] The proponent declined, calling it "not considered necessary".[191]
- The years Moondarra cannot supply are the dry years. Then the Latrobe matters most to Lake Wellington [52], regional groundwater pressures fall, and Chapter 8 expects extra pumping "may be required in the short term to fill the pit lake".[192]
- The bores are described three ways (Table 7):
    - The proponent told the Commonwealth they would stay "in service" for at least ten years after filling, for top-up and for the dewatering the other mines need.[193]
    - Its referral said the pit lake would "obviate a requirement for ongoing groundwater pumping into perpetuity".[194]

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[182] Southern Rural Water 2025, *Statement of Reasons, groundwater licence WLE091664*, pp. 4; licence condition 3, 3, 6.
[183] ENGIE Hazelwood 2025, *Application to modify groundwater licence 2007412*, pp. 1, 4; application form, pp. 2-3.
[184] Ibid., GHD letters of 9 April and 3 June 2025.
[185] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 5, p. 20.
[186] ENGIE Hazelwood 2026, *Technical Report E: Groundwater*, p. 26; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-1.
[187] ENGIE Hazelwood 2026, *Attachment IV*, p. 25; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-21; Chapter 8, Table 8-3, WQMC02, p. 8-13.
[188] ENGIE Hazelwood 2026, *Attachment VI*, Appendix F, p. 6; ENGIE Hazelwood 2026, *Attachment IV*, p. 24.
[189] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-21.
[190] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 36c.
[191] ENGIE Hazelwood 2026, *Attachment VI*, p. 5.
[192] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 8, Table 8-2, p. 8-12.
[193] ENGIE Hazelwood 2022, *Letter to the Commonwealth Department, 6 October 2022*; Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 35.
[194] ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239*, p. 1.

    - The draft DMRP says they "will be decommissioned and rehabilitated (sealed)", while keeping M2 groundwater as a top-up source.[195]
- The timing compounds the gap:
    - The pit lake is expected full "nominally by the end of 2035".[196]
    - The supply agreement is "valid until 2035".[197]
    - The groundwater licence expires on 30 June 2030.

The perpetual top-up begins with neither source secured (Figure 6).

Climate

49. The rivers assessment leaves out the post-1997 climate the State called prudent to plan for. The EES scales the record to future climates from the post-1975 period. Its medium 2065 projection cuts runoff by 16.3 per cent and its high projection by 41.5 per cent.[198] Runoff since 1997 is already 23 per cent below the post-1975 average. DELWP called that "drier than the medium climate change projection for the year 2040", and "prudent" to treat as a new baseline.[199] The Ecological Effects Assessment used post-1997 conditions as its future climate,[200] and the EES uses them for the pit lake supply, but not for rivers and wetlands. Chapter 8 says the rivers model "includes both historical climate reference periods".[201] Attachment IV's scenario table shows no rivers result under post-1997 conditions. WGCMA's 2026 strategy agrees: "it would be more correct to call current climate post-1997 and set a more realistic future climate that accounts for further warming".[202]

50. The 2025 climate guidelines do not cure the omission. The EES says it follows the 2020 guidelines, which recommended post-1997 "as a precautionary scenario",[203] so by its own method the rivers assessment omitted it. DEECA's November 2025 guidelines say three successive wetter years since 2020 have "reduced the relevance" of that scenario.[204] They keep the concern behind it: they replace the step with a test for a persisting shift in rainfall-runoff response, and warn that the old scenario "may underestimate longer-term future risks".[205] The rivers assessment ran neither. The Strategy's principle is that rehabilitation should achieve safe, stable and sustainable landforms "under the range of future climate and water availability scenarios recommended in the guidelines issued by" DELWP "for water resource planning activities";[206] in 2020 that range included post-1997. Technical Report A relies on the Amendment's statement that licensees applying the guidelines are "well placed" to plan.[207] The same page of the Amendment says that "the risk of a drier climate future as described in the LVRRS remains current and real", that surface water "may not be available in the volumes required or at the times needed", and that runoff may fall "by up to 42% by 2065 (for a high projection)".[208]

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[195] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 8, p. 6; Appendix C, WQMC02.
[196] ENGIE Hazelwood 2026, *Attachment VI*, Appendix F, p. 6.
[197] ENGIE Hazelwood 2026, *Technical Report B*, p. 56.
[198] ENGIE Hazelwood 2026, *Technical Report A: Climate Change*, p. 47.
[199] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, Table 5, p. 14; p. iii.
[200] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 30.
[201] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 8, p. 8-9.
[202] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 40.
[203] ENGIE Hazelwood 2026, *Technical Report A*, p. 40; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 8, pp. 8-1, 8-8.
[204] Department of Energy, Environment and Climate Action 2025, *Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria*, Box 2, p. 27.
[205] Department of Energy, Environment and Climate Action 2025, *Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria*, pp. 19, 27.
[206] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, Principle 3, p. 18.
[207] ENGIE Hazelwood 2026, *Technical Report A*, pp. 6, 27.
[208] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, p. 14.

51. The EES ran the dry case, then kept it out of its conclusions. The IESC asked for the same results: the documents present results "predominantly for the medium climate change scenario only", and the proponent "should also present and discuss results for a high (dry) climate scenario to fully understand the range of potential impacts possible".[209]

- No scenario "is regarded as more than likely than another",[210] yet the pit lake modelling chose the medium "as the most likely scenario for climate".[211]
- Technical Report D's approach "was to focus on the median climate scenario", and making the worst case the main focus is "not considered to be a reasonable approach".[212]
- A dry run of the simultaneous fill is rejected because dry conditions "are not expected to prevail for several decades".[213]
- Dry results sit in an attachment, "to limit the volume of material".[214] Chapter 11 still concedes that "the risk to aquatic ecosystems increases under extreme or high climate change scenarios".[215]

52. The dry years matter most, and they are not decades away. The Latrobe's share of Lake Wellington's inflow rises in dry years [2]: on gauged flows it was 62 per cent in the driest quarter of years from 1990/91 to 2024/25, against 49 per cent in the wettest, though not in every dry year (Annex 1, section 1.3). CSIRO records that half the time since 1990 has been drought, "much of this being extreme drought", with the 20-year average rainfall at a record low in 2019.[216] The conditions Attachment VI does not expect "for several decades" describe half the recent record. WGCMA's staff and expert panel note that about a quarter of the Latrobe system's annual flow is extracted, a share much higher in drought years, "almost half of total flow in 2006/07", so that "ecological stress can intensify precisely when ecosystems are most vulnerable".[217]

53. The Scoping Requirements required the worst case the EES declined to focus on. They direct the EES to "assume the worst-case scenario where the effectiveness or viability of mitigation measures is uncertain".[218] The measures relied on are uncertain on the EES's own account:

- an unwritten drought plan;
- an offset whose mechanism "has not been explored";[219]
- returns and conditions that others must deliver.

54. The risk method cannot register a project effect in a dry climate. Where baseline risk is already at the top of the scale, no increment changes the rating. Under the dry climate the estuary flushing criteria fail in 30 years against 6 under the medium climate, "influenced by the climate change scenario but not by the project scenario".[220] Risk is "high for all project scenarios".[221] A method that reads "climate dominates" as reassurance cannot assess a project whose effects matter most when the climate is worst.

55. Climate and the take compound. CSIRO finds reduced rainfall and drought "act synergistically with water extractions in the western catchments", and attributes recent salinisation to

[209] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 16.
[210] ENGIE Hazelwood 2026, *Attachment VI*, pp. 8, 9, 13.
[211] ENGIE Hazelwood 2026, *Attachment IV*, p. 16.
[212] ENGIE Hazelwood 2026, *Attachment VI*, p. 13.
[213] Ibid., p. 17.
[214] Ibid., p. 10.
[215] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-51.
[216] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site and its catchment to bushfire and climate change*, pp. 51, 56.
[217] Goode, A. et al. 2026, *Implications of the clean energy transition for waterways*, pp. 4-5.
[218] Department of Transport and Planning 2023, *Scoping Requirements*, s 4.3, p. 20.
[219] ENGIE Hazelwood 2026, *Technical Report D*, p. 274.
[220] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-14.
[221] ENGIE Hazelwood 2026, *Technical Report D*, p. 204.

"reductions in rainfall combined with water extractions". By 2060 under high emissions, it projects for the Mitchell-Thomson catchment:[222]

- median runoff 11 per cent lower;
- 18 per cent fewer high-flow days;
- 87 per cent more days below the 5th-percentile flow.

The Latrobe Valley projections that WGCMA's staff and expert panel cite add "extended low-flow periods, reduced freshes, and fewer overbank events that sustain floodplain and wetland processes".[223] DELWP's projections for the Latrobe fall hardest on the high flows: 90th-percentile runoff 31 per cent lower by 2040 and 42 per cent by 2065, against no reduction in low flows; and surface water availability since 1997 has already been 27 per cent below the long-term record.[224] The project takes water in dry periods and harvests high flows, exactly where the projected losses are greatest. When the climate is already pushing Lake Wellington toward marine conditions, each further extraction brings the change forward.

56. A faster fill does not answer the dry case. The EES argues that it shortens the window in which filling can coincide with drought. Technical Report D rates the risk of two consecutive years without a Lake Wellington flush "medium", falling to "low" under a fast or connected fill. Under the high climate, though, "the risk is high for all project scenarios".[225] The fast fill helps only under the medium climate. It also:

- assumes 30 GL/yr can be delivered through drought, against Gippsland Water's 2.48 GL/yr nine years in ten by 2040 [43];
- assumes a 2026 start that "has now passed",[226] while climate risk "will increase more significantly beyond the proposed filling period";[227]
- takes more in every fill year, dry years included, where a drought pause takes nothing in drought years; and
- depends "on current and future water users not fully using their allocations",[228] while the EES models Yallourn and Loy Yang filling from the same river [72].

For the Tyers, Technical Report D itself concludes that "The slow fill offers advantages under the high climate change scenario".[229] The IESC found it "not clear" that a faster fill "will adequately negate the increased impacts of greater surface water take".[230]

57. The climate projections stop at 2065; the pit lake does not. The EES then holds them flat, but the landform is perpetual and needs top-up in most years. Attachment IV says that "all models adopt a flat line extrapolation" after 2065;[231] the pit lake model does so from 2075.[232] Only one run, in the pit lake model, continued the trend, and it was wet,[233] although the EES's climate peer reviewer had advised that "it is likely that the linear extrapolation is indicative of the lower (drier) bound".[234] The EES's climate report says the implications of climate beyond its adopted range "are qualitative

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[222] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site*, pp. 94, 80; Table 9, p. 60.
[223] Goode, A. et al. 2026, *Implications of the clean energy transition for waterways*, p. 5, citing Jacobs, CSIRO and University of Melbourne 2017.
[224] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, p. 9, citing DELWP 2016 and 2020.
[225] ENGIE Hazelwood 2026, *Technical Report D*, s 8.2.2.2, p. 204; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-15.
[226] ENGIE Hazelwood 2026, *Attachment IV*, p. 5.
[227] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-31.
[228] Ibid., Chapter 25, p. 25-13.
[229] ENGIE Hazelwood 2026, *Technical Report D*, p. 234.
[230] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 24.
[231] ENGIE Hazelwood 2026, Attachment IV, p. 14.
[232] ENGIE Hazelwood 2026, Technical Report C1, p. 60.
[233] ENGIE Hazelwood 2026, Technical Report C1, Table 10-1, p. 113; Figure 10-8, p. 139; ENGIE Hazelwood 2026, Attachment IV, Table 2-2, p. 16.
[234] ENGIE Hazelwood 2026, Technical Report A, Appendix A, Table A-2, p. A-4.

only and have not been modelled in any of the technical studies".[235] The State's 2020 Latrobe study continued the trend,[236] and the 2025 guidelines give a method for projected changes "from 2076 to 2099". They treat the high emissions scenario as appropriate for water availability decisions that "have uncertain outcomes due to climate uncertainty", "affect system values/performance after 2050", "are irreversible" and "have high consequences", all of which hold for a perpetual pit lake. They also "propose stress testing where water systems are vulnerable", including "low-likelihood, high-impact events, such as droughts or floods more severe than those observed in the instrumental record", and describe running "the three driest years from the Millennium Drought back-to-back" to stress test urban supply security.[237] The EES says that in times of shortage supply to the project "will be restricted or ceased early" to secure supply for towns and industry.[238] The IESC also found that scaling the historic flood record by annual factors is "unlikely to yield outcomes that are consistent with current science", because under global warming small floods are projected to become less frequent and smaller while large floods become more frequent and larger.[239]

Flows, wetlands and the Tyers

58. The EES does not report the wetland flow measures the State uses. It rests on the same flow science as the State's 2020 study,[240] but reports different things (Figure 4; Table 2). The Strategy says what such effects should be measured against: plans "that change the volume, timing or quality of water in the Latrobe River or the physical form of the waterway should be carefully evaluated", with environmental values assessed "using metrics that reflect these factors, such as the environmental flow recommendations for the Latrobe River".[241]

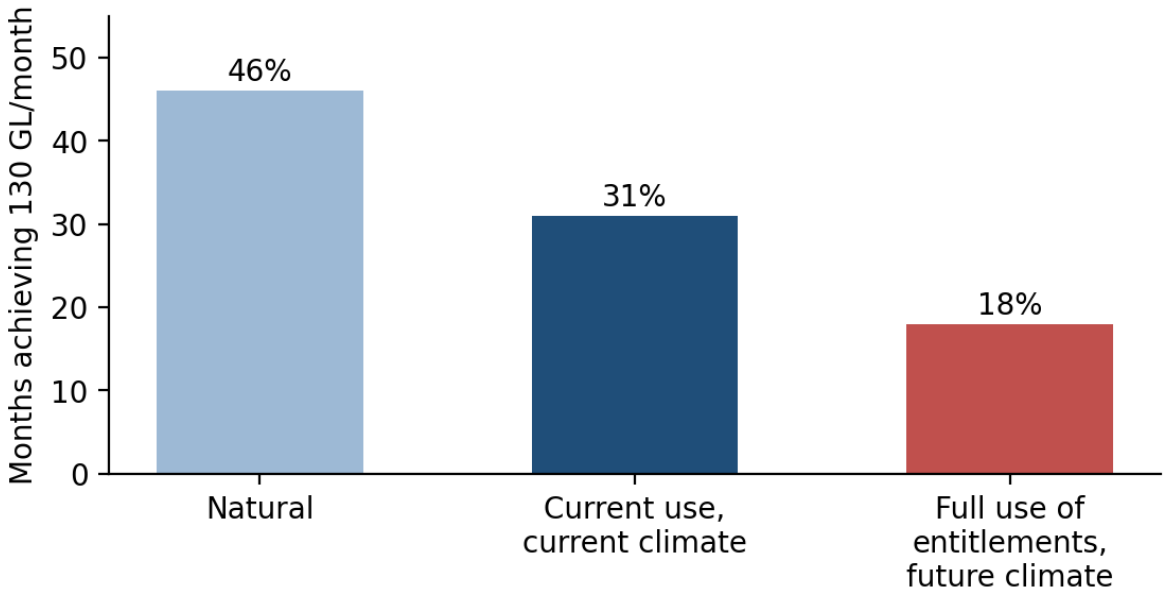


Figure 4. Months in which the 130 GL/month flow that flushes salt from Lake Wellington is achieved.[242]

[235] ENGIE Hazelwood 2026, Technical Report A, p. 50.
[236] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 16.
[237] Department of Energy, Environment and Climate Action 2025, *Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria*, pp. 28, 37-38, 51, 69.
[238] ENGIE Hazelwood 2026, Technical Report A, p. 55.
[239] Independent Expert Scientific Committee 2025, Advice IESC 2025-162, para 14.
[240] Alluvium 2020, *Environmental Water Requirements Report: Latrobe Environmental Water Requirements Investigation*.
[241] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, p. 20.
[242] Hale, J. et al. 2020, *Ecological Effects Assessment*, Table 8, p. 34.

Measure	The State[243]	The EES
Lake Wellington flush (130 GL/month)	46 per cent of months naturally, 31 now, 18 under full use and a future climate	No project scenario reported; tested only as two dry years without a flush, "influenced by the climate change scenario but not by the project scenario"[244]
Freshwater at the wetland inlets (3,200 ML/day)	Met on 17 per cent of days under full use and a future climate, with gaps of up to 630 days	Not tested; "overbank" days on a 5,000 ML/day threshold, a third of Alluvium 2020's recommendation, fall from 14 to 13.9 per cent[245]
Sale Common flush (15,000 ML/day)	2.5 per cent of years under full use and a future climate	Not reported
Conclusion	"more fresh water for the environment is required"[246]	Swing Bridge mean flow down 1.3 per cent, "measurable but not substantial"[247]

CSIRO cites the same 31 per cent, and names flows above 130 GL/month to Lake Wellington as the medium-term management response for the lake.[248] WGCMA's 2026 strategy reports the same three measures, with the same results.[249]

59. The flow method is sound but cannot see the project in the estuary. The IESC found the method adequate.[250] FoGL's concern is where it is pointed:

- The Alluvium 2020 recommendations are "the minimum environmental flow regime needed".[251] Yet the estuary thresholds in Technical Report D do not match them, and the 3,200 ML/day inlet threshold is absent.[252]
- Technical Report D finds the estuary criteria are not met "regardless of climate or water management".[253] A pass-or-fail test that every scenario fails cannot show whether the project makes things worse, and the estuary is where the Ramsar values sit. Measuring how often and for how long the criteria fail, as the Ecological Effects Assessment does, would show the difference.
- Wetland drying is set aside as "managed exclusion of water",[254] though drying duration is now the State's test for the wetlands (Part D; Table 4).
- The flows below the Tyers confluence, the reach that feeds the estuary, are reported for the fast-fill connected scenario only. The IESC found that as a result "flow reductions and potential impacts from slow-fill connected and fast-fill unconnected scenarios cannot be distinguished", and asked for flow data for the other scenarios "to understand impacts in the lower Latrobe system specific to each scenario".[255]

60. The thresholds can only detect a flow event disappearing. Chapter 11's criteria count runs of years with no event, such as "5 continuous years that do not record a winter fresh in the Tyers River".[256] If freshes fell from three a year to one, no criterion would be triggered; the flow method the State uses sets its targets as events per year [58]. Three further gaps follow:

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[243] Ibid.
[244] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-14.
[245] ENGIE Hazelwood 2026, *Technical Report D*, Table 73, p. 185.
[246] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. ii.
[247] ENGIE Hazelwood 2026, *Technical Report D*, Tables 71-72, p. 181; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-13.
[248] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site*, pp. 99-100.
[249] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, Table 4, p. 42.
[250] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 23.
[251] Alluvium 2020, *Latrobe Environmental Water Requirements*, p. v.
[252] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.1, Attachment 1, pp. 35-36.
[253] Ibid., p. 199.
[254] Ibid., p. 200.
[255] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 17.
[256] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, Table 11-2, p. 11-4.

- **No test for the autumn spawning fresh.** The only summer and autumn fresh criterion for migratory fish is labelled "(vegetation)", and for Latrobe winter and spring freshes the secondary criterion is "None specified".[257]
- **The wrong recommendations at the Swing Bridge.** Chapter 11's estuary criteria cover only winter and spring freshes and overbank flows; baseflows are "None specified".[258] Technical Report D then tests the Swing Bridge against 250, 620, 920, 2,200, 3,500 and 5,000 ML/day,[259] which are the 2020 flow study's recommendations for Reach 5 of the river, Kilmany South to the Thomson confluence. For the estuary, whose compliance point is the Swing Bridge, the study recommends baseflows of 1,100 ML/day; summer and autumn freshes of 2,200 ML/day for 7 to 10 days and 3,200 ML/day for 4 to 10 days; winter and spring freshes of 3,200 ML/day for 5 to 20 days and 4,500 ML/day for 10 to 30 days; bankfull flows of 9,500 ML/day; and overbank flows of 14,000 ML/day.[260] None of these is tested, and nor are the 4,100 ML/day and 130 GL a month flushing thresholds Chapter 11 itself cites.[261]
- **A reduction conceded, no change scored.** At Thoms Bridge, "the frequency of daily flows that meet the recommendations for the higher flow events such as winter fresh, bankfull and overbank events, is reduced by the Morwell River connection", yet the risk to listed fish is "unchanged compared to baseline conditions", and the size of the reduction is not given.[262]

For the Grayling, whose generation length is about 2.5 years, five years without the cue is two generations [134]. Chapter 11 cites the State's 2020 ecological effects study only for where species occur, and does not engage with its conclusions [3], [69].[263]

61. The EES records opposite conclusions on the Tyers in one report.

- Under the fast fill and medium climate, mean annual flow falls 15 per cent and the 5th-percentile flow 47 per cent, from 15 to 8 GL.[264] Under the dry climate, the 5th-percentile flow falls 43.1 per cent.[265]
- Summer baseflow (100 ML/day) is met on 33.7 against 42.5 per cent of days under the medium climate, and on 17.3 against 25.8 per cent under the dry: losses of about a fifth and a third.[266]
- Technical Report D records "critical consequences... permanent encroachment... and loss of aquatic fauna", then finds "no permanent change in habitat condition is anticipated".[267]
- Moondarra's spills are "essential for the provision of environmental water", and "contribute significantly to summer and autumn freshes in the lower Latrobe River".[268]
- The IESC pointed to Technical Report D's own figure of 15 continuous years with no bankfull or overbank flow or winter fresh in the Tyers, and asked for sensitivity analyses using "more stressful flow-ecology thresholds" to increase confidence "that risks for some components have not been under-estimated".[269]
- The IESC found the conclusions "downplay the predicted reduction under medium climate", and give "the impression that even severe ecological impacts are acceptable if they are

[257] Ibid.
[258] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, Table 11-2, p. 11-5.
[259] ENGIE Hazelwood 2026, *Technical Report D*, Table 73, p. 185.
[260] Alluvium 2020, *Latrobe Environmental Water Requirements*, pp. 125, 142-143.
[261] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, pp. 11-15, 11-16.
[262] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, pp. 11-30, 11-31; Chapter 25, p. 25-46.
[263] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, notes to Tables 11-8 to 11-11.
[264] ENGIE Hazelwood 2026, *Technical Report D*, Tables 71-72, p. 181; p. 180.
[265] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.1, Attachment 2, p. 38.
[266] Ibid., Table 73, p. 185; Attachment 3.1, Attachment 2, p. 37.
[267] ENGIE Hazelwood 2026, *Technical Report D*, pp. 233, 235.
[268] Ibid., pp. 9, 199.
[269] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 23, citing Technical Report D, Table 70, p. 193.

restricted to individual reaches".[270] The proponent replied that a higher Tyers rating "would not have changed the overall risk rating".[271] Its entitlement argument is answered at [34].

- WGCMA's 2026 strategy reports the IESC's finding of "significant risks to the Tyers River from Hazelwood Mine Rehabilitation", "particularly reduced summer and winter baseflows and summer freshes".[272] Moondarra has already cut the Tyers' average flow by "over 50%".[273]

Environmental water the model assumes but the river does not have

62. The model assumes the State's returns were delivered from 2026. It assumes the Sustainable Water Strategy returns are "implemented and in place ... commencing start of 2026".[274] The Scoping Requirements asked instead for modelling "with the current allocations, extractions and uses" of water, including environmental flows:[275]

Return	Modelled	Delivered at 30 June 2025
Latrobe (Policies 8-12, 8-13)	15 GL/yr from 2026: 7.3 GL and 7.7 GL[276]	5.333 GL; 8-12 "Partially achieved", 8-13 "Not yet started"[277]
Tyers (Policy 8-15)	13 GL/yr "once the Hazelwood mine lake has been filled"[278]	"Not yet started";[279] target up to 13 GL/yr by 2032[280]

63. On any reading, the river does not have the water the model assumes. The 3/4 Bench reallocation created three 5.333 GL entitlements, one each for the Gunaikurnai, agriculture and the environment.[281] Technical Report B concedes it is "currently unknown how much of the reallocation will be returned as environmental flows".[282] The model carries 15 GL/yr against 5.333 GL allocated: about 9.7 GL/yr the river has not been given, in every downstream result. These returns are the State's statutory remedy for an imbalance that already exists [40]. Modelling them as delivered credits the project with that remedy. The regional waterway manager confirms the gap. The State's regional water strategy sets policies for water recovery in the short, medium and long term, but "no specific pathway has been identified for these targets to be achieved".[283] For the Tyers return by 2032, "the method of achieving this is yet to be determined".[284] WGCMA will advocate for "an equitable share for the environment" when the mines' rehabilitation entitlements are reallocated, but its schedule for securing the gap between the power stations' net use and their entitlements names Yallourn (2029-30) and Loy Yang (2035-36), not Hazelwood.[285]

64. The project also impedes the return it assumes. Technical Report B records a "Possible impact" on the 13 GL Tyers return under both fill rates, yet proposes no mitigation because "impacts

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[270] Ibid., paras 25a, 25b.
[271] ENGIE Hazelwood 2026, *Attachment VI*, p. 10.
[272] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 42.
[273] Ibid., p. 32.
[274] ENGIE Hazelwood 2026, *Attachment IV*, p. 9.
[275] Department of Transport and Planning 2023, *Scoping Requirements*, p. 16.
[276] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 2, p. 5.
[277] Department of Energy, Environment and Climate Action 2025, *Central and Gippsland Region Sustainable Water Strategy 2024-25 Progress Report*, pp. 9, 19.
[278] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 2, p. 5.
[279] Department of Energy, Environment and Climate Action 2025, *Sustainable Water Strategy 2024-25 Progress Report*, p. 19.
[280] ENGIE Hazelwood 2026, *Technical Report B*, p. 75.
[281] Department of Energy, Environment and Climate Action 2025, *Sustainable Water Strategy 2024-25 Progress Report*, Action 4-8, p. 9.
[282] ENGIE Hazelwood 2026, *Technical Report B*, p. 76.
[283] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 59.
[284] Ibid., p. 60.
[285] Ibid., pp. 59, 88.

are not anticipated".[286] Technical Report D relies on the same return to support its conclusion of no material impact on MNES. CSIRO recommends the opposite direction: "Recovery of additional environmental water for the Latrobe estuary and lower Latrobe wetlands".[287] The Strategy's principle is that rehabilitation should not "adversely impact on these rights, or result in unreasonable interferences in making progress towards their improvement", referring to the environment, Traditional Owner values and existing users.[288] The Amendment lists new environmental water recovery targets for the Latrobe system, and options for fish passage "in the Tyers River below Moondarra Reservoir", among the State's actions for the river.[289]

Flood harvesting

65. The flood water the connected option takes is allocated to the environment. The option takes Morwell River flows above about 2,400 ML/day: around 4 GL/yr during the fill, up to 20 GL in a year,[290] and 6 to 10 GL/yr afterwards.[291] The EES is explicit that this water is not the proponent's:

- It is "'above cap' and is currently allocated to the environment",[292] part of "the total surface water available to the environment".[293]
- ENGIE "presently does not have a licence to divert flood flows".[294] Chapter 5 concedes a licence may not be available and floats "a new category of approval".[295]
- The volume is open-ended: a conservative top-up strategy "will increase the amount of water and sediment that is harvested",[296] and no operating strategy is stated.

Part H [216] to [219] sets out why, under the Water Act, a licence for this take falls to be refused.

66. The flood take is not hypothetical. After the June 2021 floods cracked the Morwell River Diversion, a temporary diversion under an Emergency Order put 34.1 GL of Morwell flood water into the void between April and September 2022.[297] That is more than eight times the EES's average annual flood take. It operated under a conditioned take and use licence, an EPBC s 158 exemption and amendments to MIN5004. The licence has expired and "is not able to be renewed" for pit lake filling.[298] FoGL has found no assessment of what the diversion did to flows reaching the lower Latrobe wetlands and Lake Wellington that winter.

67. The water taken is not a rare flood. The diversion threshold is described both as a two-year event and as a "1 in 5 year event".[299] On either description, it is a high flow of the kind that still reaches the Lakes [69]. FoGL's 2025 DMRP submission said that at most an emergency diversion in a flood larger than 1 in 20 years could be contemplated.

68. The EES records the effect of flood harvesting, then declines to assess it:

- **The effect.** Under the wet climate, days above the Thoms Bridge overbank threshold (15,000 ML/day) fall by 40 per cent, and bankfull days by about 15 per cent.[300]

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[286] ENGIE Hazelwood 2026, *Technical Report B*, Table 10-1, p. 98.
[287] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site*, p. 131.
[288] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, p. 20.
[289] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, p. 10.
[290] ENGIE Hazelwood 2026, *Technical Report D*, p. 4.
[291] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-22.
[292] ENGIE Hazelwood 2026, *Technical Report D*, p. 73; pp. 235, 274.
[293] ENGIE Hazelwood 2026, *Technical Report B*, p. 10.
[294] Ibid., p. 4.
[295] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-11.
[296] ENGIE Hazelwood 2026, *Technical Report D*, p. 236.
[297] ENGIE Hazelwood 2026, *Attachment IV*, p. 18.
[298] ENGIE Hazelwood 2026, *Technical Report B*, p. 89.
[299] Ibid. (two-year event); ENGIE Hazelwood 2026, *Attachment IV*, p. 24 ("1 in 5 year event").
[300] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.1, Attachment 2, p. 39.

- **The assessment.** The loss is "not considered consequential and has not been further assessed", and an offset "has not been explored".[301]
- **The concession.** The alternatives assessment accepts that flood harvesting "may reduce the freshwater inflow to Lake Wellington".[302]

Those flows are Lake Wellington's only resets. The 2019/20 to 2021/22 wet years took it from 17.2 to 1.0 PSU; three years later it was back at 11.0 PSU (Annex 1, section 1.3). The draft DMRP's engagement plan nonetheless tells the community the Morwell River "will not be impacted by diversion of water during high flow events".[303]

69. The State has already found flood harvesting detrimental to Lake Wellington. Its 2020 study found it "will be detrimental to the system, particularly for Lake Wellington and the Lower Latrobe Wetlands", and could change the Ramsar site's ecological character.[304] Reduced flood events have, in part, driven Lake Wellington's rising salinity,[305] and only large flows still reach the Lakes.[306] Flood harvesting takes those flows. WGCMA's 2022 review says the importance of floods above 130 GL a month "cannot be overestimated", because they "are responsible for flushing of salts (and nutrients) through the system", and that "Plans to harvest flood flows (e.g., as part of the Latrobe Valley Mine Rehabilitation) should be carefully considered in this context"; it treats the combined effects of filling the pits with Latrobe water and future climates as "a potential risk to Lake Wellington and the fringing wetlands".[307] WGCMA records that the 2020 modelling left out "The use of flood flows from the Morwell River", with the volumes "to be considered in the Environmental Effects Statement".[308] The EES records the effect, then declines to assess it [68].

70. The connection's benefits are small, and the IESC recommended against it. The IESC strongly recommended the unconnected option.[309] The benefits are 15 to 25 mg/L of TDS after a century,[310] and a fill "between 0.3 and 1.1 years" shorter.[311] Chapter 11 notes that greater reliance on flood water "would raise metalloid build-up/spike risk unless offsetting is secured".[312] WGCMA's strategy adds a cost the comparison leaves out: fish passage to the upper Tyers and Latrobe "will become increasingly important if a flow-through design for mine rehabilitation is implemented, which would prevent migration of fish through the Morwell River".[313] Avoidance is taken up at D5 [146].

Cumulative effects

71. Cumulative effects are one reason this EES was required. The Minister cited "the potential for cumulative adverse effects".[314] Three mines will fill and top up pit lakes from one river (Figure 5; Table 6). The MLRA warned that assessing one mine "ignores the cumulative regional water needs and potential impacts from mine rehabilitation for all three Latrobe Valley mines", and found the case for a collective EES "strong".[315] It expected this EES to confirm the entitlements and access conditions for rehabilitation and post-closure maintenance.[316]

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[301] Ibid., pp. 234, 235, 274.
[302] ENGIE Hazelwood 2026, *Attachment I*, p. 45.
[303] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Appendix D, p. 6.
[304] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 43; see also p. ii, where such harvesting "would have negative impacts".
[305] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 42.
[306] BMT WBM 2010, *Ecological Character Description*, p. 136.
[307] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 8, 24.
[308] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 40.
[309] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, paras 7, 40.
[310] ENGIE Hazelwood 2026, *Technical Report C1*, p. 140.
[311] ENGIE Hazelwood 2026, *Technical Report D*, p. 9.
[312] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, Table 11-14, p. 11-42.
[313] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 71.
[314] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-5.
[315] Mine Land Rehabilitation Authority 2022, *Hazelwood Rehabilitation Investigation Report*, p. 66; recommendation 26.
[316] Mine Land Rehabilitation Authority 2022, *Hazelwood Rehabilitation Investigation Report*, p. 66.

72. The rivers model puts the other mines' take in its baseline, where it cancels out. It was built to simulate Hazelwood "individually and cumulatively" with Yallourn and Loy Yang,[317] but places the other mines' filling in the baseline of every run. Their effect cancels out of every reported result, and no cumulative rivers scenario is reported, though Attachment IV claims to cover flows "to the Gippsland Lakes".[318] The same page concedes that "a specific cumulative modelling scenario was not undertaken for the surface water (Source) modelling". WGCMA's staff and expert panel put the three pit lakes' combined volume at about 2,200 GL, "equivalent to 4.5 times the average annual flow in the Latrobe River",[319] and WGCMA lists the "Cumulative impacts of climate change, reduced flows and mine rehabilitation on hydrology" among its key knowledge gaps.[320]

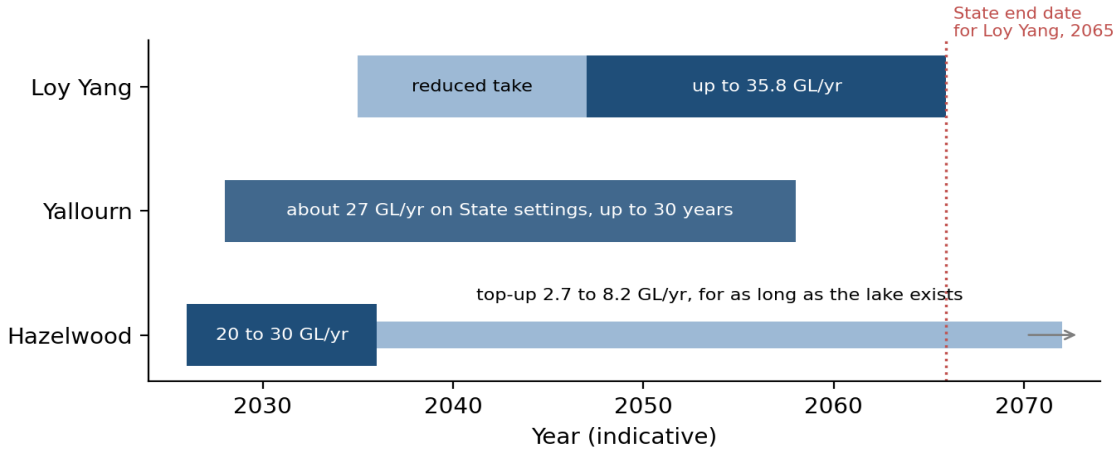


Figure 5. Three rehabilitation takes from one river system over overlapping decades (indicative timing). Loy Yang: Gazette S 703, with a reduced take after Loy Yang A closes in 2035 and up to 35.8 GL/yr after Loy Yang B closes in 2047, ending by 1 December 2065. Yallourn: about 27 GL/yr on the State's settings from closure in 2028, for up to 30 years; its application is pending. Hazelwood: 20 to 30 GL/yr from Moondarra during the fill, then top-up.

A related flow is also missing. If Loy Yang were not filled, its pumped groundwater of about 20 GL/yr would discharge to the river after closure.[321] The rivers model moves Loy Yang straight from operation to filling, so that flow, like Hazelwood's former discharges [41], appears in no result.

73. The other mines are also modelled below their own figures.

- Loy Yang fills at 25 GL/yr, against its gazetted 35.8 GL/yr,[322] while the groundwater model fills it with 37 GL/yr.[323]
- Yallourn's permanent top-up is 1 GL/yr, against 2.61 GL/yr in a median climate and 4.66 GL/yr in a dry one, in its own draft plan.[324]
- Both take water to 2089, despite the LVRRS limit of 30 years or 2065.[325]

74. The EES's three reasons for not reporting a cumulative rivers scenario each fail.

- It relies on the Alluvium 2023 study, which carried Hazelwood's 20 GL/yr in its baseline.[326]
- It treats that 20 GL/yr study as "a worst-case scenario", because the fast fill was lower risk under the medium climate.[327] Under the dry climate, Technical Report D finds the slow fill better for the Tyers.

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[317] ENGIE Hazelwood 2026, *Technical Report A*, Table 6-5, p. 46.
[318] ENGIE Hazelwood 2026, *Attachment IV*, p. 32.
[319] Goode, A. et al. 2026, *Implications of the clean energy transition for waterways*, p. 6.
[320] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 79.
[321] ENGIE Hazelwood 2026, *Attachment IV*, Table 4-3, p. 30.
[322] Ibid., Table 4-4, p. 31; note, p. 36.
[323] Ibid., pp. 35-36; Table 4-4, p. 31.
[324] ENGIE Hazelwood 2026, *Attachment IV*, Table 4-2, p. 29; note, p. 34; EnergyAustralia 2025, *Draft Yallourn Declared Mine Rehabilitation Plan*, Table 8-21, p. 272.
[325] Ibid., p. 37.
[326] ENGIE Hazelwood 2026, *Technical Report D*, Table 108, p. 259; Part B.
[327] Ibid., p. 258.

- It holds that a project must "first have an adverse residual impact" to contribute to a cumulative one, and defers "a thorough cumulative impact assessment" to the next LVRRS review.[328]

Chapter 11 then asserts two things:

- the river can support the other mines alongside "at least 20GL per year" at Hazelwood;
- "up to 30GL/yr" from Moondarra "can be accommodated" within the State's returns.

Neither is supported:

- The study tested 20 GL/yr only.
- Technical Report B accepts the fast fill may impede the Tyers return [64].
- The Tanjil, where the LVRRS conditions increase risk, is left out of Technical Report D's cumulative conclusion.

The third reason inverts the Commonwealth's test. The water trigger builds cumulative effects into its definition: a large coal mining development is one with a significant impact on water resources, "including any impacts of associated salt production and/or salinity", in its own right or "when considered with other developments, whether past, present or reasonably foreseeable developments".[329] The guidelines add that "an apparently small impact may still be a significant impact if there are substantial cumulative effects", and that significance "is likely to be greater in a more developed system, or where a number of existing or proposed developments are or will be using or impacting upon a water resource".[330] Cumulative impacts "should be considered at the local, aquifer or catchment, and regional scale".[331] For the Ramsar site, the guidelines for all MNES require regard to "existing levels of impact from other sources" and "the total impact which can be attributed to the action over the entire geographic area affected, and over time".[332]

75. Others have said the three takes must be assessed together.

- **The IESC: the surface water cumulative assessment is "reasonable, but relies on several assumptions", including the fill time "if water supply is limited during dry years" and the other mines' "closing times, fill sources and fill periods";** climate and water use "act collectively and must be considered together"; and it was "not clear if or how" the three-mine demand profiles had been used, so the proponent "should incorporate cumulative impacts into the risk assessment".[333] The proponent replied that "no additional information is available".[334] It also dismissed a dry run of Hazelwood and Yallourn filling together as covering a "relatively short (~8-year) period",[335] on a 2026 start that has now passed [56].
- **The State**, to the Commonwealth: the project "is likely to have cumulative impacts that extend regionally and require assessment".[336]
- **Southern Rural Water:** "The groundwater systems are connected, and changes in extraction at one mine can influence requirements at the others".[337]
- **ENGIE** told the Commonwealth that Hazelwood's bores may be needed for dewatering at the other mines.

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[328] Ibid., pp. 261, 263.
[329] *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 528, definition of large coal mining development.
[330] Department of Climate Change, Energy, the Environment and Water 2022, *Significant Impact Guidelines 1.3*, s 4.1, p. 9; s 4.5.1, p. 14.
[331] Ibid., s 4.5.1, p. 14.
[332] Department of the Environment 2013, *Significant Impact Guidelines 1.1*, p. 5.
[333] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, paras 32, 33.
[334] ENGIE Hazelwood 2026, *Attachment VI*, p. 17.
[335] Ibid.; Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 33.
[336] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 32(e).
[337] Southern Rural Water 2025, *Statement of Reasons, groundwater licence WLE091664*, p. 2.

- **AGL:** its Loy Yang application proposed environmental referral only by 30 June 2032, meanwhile to "monitor the EES process for the Hazelwood Rehabilitation Project".[338] The entitlement issued in December 2025, while this EES treats Loy Yang's filling as baseline. Each process looks to the other, and neither assesses the three takes together. AGL's application also projects the Latrobe system's median availability falling from 805 to as little as 410 GL a year by 2065.[339]

FoGL acknowledges that the groundwater assessment reported a cumulative scenario, though it excluded Loy Yang's permanent top-up.

What leaves the pit lake

76. The connected pit lake manages its water quality by exporting it. It works through "removal of solutes via the weir during a flood event":[340] a mean of 1.74 to 6.37 GL/yr, on 6 to 17 per cent of days.[341]

77. Aluminium, copper and zinc exceed the ANZG 95 per cent species protection guideline in every project scenario.[342] Chromium exceeds only the hexavalent guideline, which Technical Report D treats as no ecological risk. The EES calls the aquatic guideline "highly conservative for a pit lake",[343] and reports drinking and livestock guidelines instead. Under the preferred option, pit lake copper rises from about 3 times the aquatic guideline at year 5 to about 33 times at year 100, on modelling the proponent calls "considered conservative".[344] But the weir discharges to the Morwell River, which is not a pit lake. Under the median climate, downstream copper exceeds background 98 per cent of the time.[345] That the river's background already exceeds the copper objective is a reason for care, not a licence to add more. WGCMA's 2026 strategy records copper in the Latrobe at Rosedale as "almost constantly exceeded with an average of 3 µg/l", against a guideline value of 1.4 µg/L.[346] Technical Report D itself accepts, as the IESC noted, that copper "may increase in toxicity and be remobilised where areas of lower pH occur, such as in the Ramsar site during dry periods".[347]

78. The modelling stops too early, omits mercury and assesses no food chain.

- **The model's horizon.** The water quality model stops at 100 years with copper still rising, while the groundwater model needed 200 years to reach stable pressures.[348] The IESC advised that concentrations "will continue to increase after 100 years",[349] and Chapter 10 agrees, but the proponent kept the 100-year horizon.[350]
- **Mercury and selenium.** Mercury, the clearest bioaccumulation risk, is not modelled. Heart Morass already carries elevated levels, and the Ramsar Site Management Plan rates toxicants a High risk, citing dietary mercury in the Lakes' dolphins. For bioaccumulating toxicants, ANZG recommends the 99 per cent value "for slightly to moderately disturbed

[338] AGL Loy Yang 2023, *Application for bulk water entitlement under the Water Act 1989 (Vic) for the future rehabilitation of Loy Yang mine*, p. 3.
[339] Ibid., p. 12.
[340] ENGIE Hazelwood 2026, *Technical Report C1*, p. 140.
[341] Ibid., Table 10-4, p. 115; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-15.
[342] ENGIE Hazelwood 2026, *Technical Report C1*, Table 10-10 (metals), pp. 133-134; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 10, p. 10-31.
[343] ENGIE Hazelwood 2026, *Technical Report C1*, p. 21.
[344] Ibid., Table 10-10, p. 133; p. 132.
[345] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.3, Table 15.
[346] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 35.
[347] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 20, citing Technical Report D, p. 207.
[348] ENGIE Hazelwood 2026, *Technical Report E*, p. 45.
[349] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 18.
[350] ENGIE Hazelwood 2026, *Attachment VI*, p. 10.

systems".[351] Selenium is tested only at 95 per cent. It reaches about 2 µg/L, the freshwater toxic effect threshold in ANZG's selenium brief, by year 75, still rising.[352]

- **No food-chain assessment.** The Commonwealth found pit lake water would cause "ongoing bioaccumulation of contaminants into the Gippsland Lakes Ramsar site".[353] Yet no food-chain or site-specific ecological risk assessment exists for Heart Morass; bioaccumulation appears only in general terms in Technical Report D's copper review. The draft DMRP requires such an assessment for runoff to Eel Hole Creek, but not for the pit lake's discharge.

79. The connected pit lake would also export nutrients toward Lake Wellington, which has a bloom history. Technical Report C1 predicts the connected pit lake "is likely to shift towards being eutrophic, which increases the potential for algal blooms". Phosphorus is "above guideline values",[354] and summer bottom waters lose oxygen. That is the condition under which stratified lakes store phosphorus and metals for release on mixing, and Technical Report C1 does not assess it. Nitrogen is above guideline too: total nitrogen exceeds the ANZG guideline of 0.35 mg/L in every scenario, marginally for the unconnected pit lake and clearly for the connected one, and nitrate and ammonia are at or above their guideline values.[355] Yet Chapter 11 states that only four of the 24 indicators modelled, all of them metals, exceed the 95 per cent guideline values, and carries only those four into its risk assessment,[356] so the nitrogen the pit lake would export is not assessed. The IESC read the same results: nitrogen and phosphorus in the pit lake are "predicted to exceed ANZG guidelines in all scenarios, and 'well-exceed' the guidelines in the connected scenarios", "increasing the likelihood of cyanobacteria blooms in the pit lake and spread of such events downstream". It set this against the proponent's view that blooms pose a low risk because cyanobacteria are present throughout the Latrobe system and "would occur regardless".[357] Chapter 25 answers only the oxygen risk of a single discharge, not the nutrient load exported over the pit lake's life.

Lake Wellington is already beyond its catchment settings:

- The Lakes have had "nine algal blooms in the main lakes in the past two decades", and the bloom limit is met only because large blooms have not occurred in successive years.[358]
- Lake Wellington's chlorophyll-a medians of 12.0 µg/L in 2024/25 and 14.5 µg/L in 2025/26 (Annex 1, section 1.3) exceed both the roughly 10 µg/L the catchment plan's 100 t phosphorus objective is designed to deliver and its 8 µg/L objective.[359]
- Southern Rural Water puts the 2025-26 phosphorus load at 107.7 t, above that objective.[360]
- Half the required 15 t reduction has no owner.

- WGCMA's 2026 strategy sets the objective that nutrient and sediment loads from the river system "will be reduced by 20% by 2065",[361] and puts the Latrobe's share at around 70 to 80 per cent of the load to Lake Wellington.[362] A connected pit lake that exports nitrogen to the river works against that objective.

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[351] Australian and New Zealand Governments 2018, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, default guideline values: mercury (inorganic).
[352] ENGIE Hazelwood 2026, *Technical Report C1*, Table 10-10, pp. 133-134.
[353] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 59.
[354] ENGIE Hazelwood 2026, *Technical Report C1*, p. vi; Hydronumerics appendix, p. 124.
[355] Ibid., p. vi; see also p. 165.
[356] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-35.
[357] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 21.
[358] Hale, J. 2024, *Addendum to the Ecological Character Description for the Gippsland Lakes Ramsar Site*, p. 17.
[359] West Gippsland Catchment Management Authority 2018, *Lake Wellington plan, Technical Appendices*, PDF p. 39.
[360] Southern Rural Water 2026, *Macalister Irrigation District Nutrient Monitoring Program: Q4 and annual report 2025-26*.
[361] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 51.
[362] Ibid., p. 83.

Nitrogen matters at least as much as phosphorus downstream. Outside blooms of Nodularia, the Gippsland Lakes are generally nitrogen-limited: nitrogen, not phosphorus, sets how much algae the water can grow.[363] Fortnightly sampling and nutrient-addition experiments in the Lakes in 2010-11 found nitrogen limiting phytoplankton growth before Nodularia appeared, and phosphorus only afterwards.[364] Nitrogen exported to Lake Wellington therefore tends to feed algal growth directly. Phosphorus becomes critical once nitrogen runs short, because Nodularia can take its nitrogen from the air and blooms on phosphorus released from sediments when bottom waters lose oxygen. The researchers conclude that controlling eutrophication in the Lakes requires controls on both nutrients.[365] Peter Gell and Max Finlayson add that high nitrate loads drive the low-oxygen conditions that release phosphate from the sediments, so the internal load matters as much as the inflows, and warn of a critical transition of the kind that has "locked in" cyanobacterial blooms in the Coorong's South Lagoon.[366] The catchment plan sets its load target for phosphorus only: it aims to reduce nitrogen losses but sets no nitrogen target, and the EES's risk assessment of the discharge covers neither nutrient. An assessment that leaves out nitrogen leaves out the nutrient that limits growth in the receiving water.

80. The connected pit lake would also export dissolved salts. On Technical Report D's tables, TDS, chromium and copper are the only parameters for which the pit lake consistently exceeds the Morwell River's background under the median climate: 95, 95 and 99 per cent of the time. Pit lake TDS reaches 660 mg/L by year 99, more than four times the Environment Reference Standard objective: "a high input of salts to the Morwell River during Lake discharges".[367] Those salts are bound for Lake Wellington, whose salinity the project already raises [107]. The State's working analysis of pit water bodies found that "Receiving waters already exceed Copper, Zinc & TDS".[368]

81. Sediment contamination in the receiving waters remains unassessed. The proponent's peer reviewer for Technical Report D, Darren Baldwin, raised two gaps:[369]

- he found it "remiss" not to address sediment quality, as Lake Wellington "is likely to be a significant sediment deposition zone";
- he noted "little direct discussion of acid sulfate soils".

He endorsed the methods and conclusions once Alluvium responded,[370] and the final report added an acid sulfate soils section and a pit lake sediment assessment. It still does not assess whether contaminants accumulate in the sediments of Lake Wellington and the lower Latrobe wetlands, where drying can make copper bioavailable [83].

82. The gate meant to protect the river has five problems. It is closed by default, to "prevent the discharge of water that fails to meet the water quality criteria":[371]

- **No criteria are stated.** The draft DMRP compares only pH, TDS and turbidity with the river above the outlet. It deems water "suitable for discharge" if it matches the model and meets recreational, drinking water and livestock guidelines,[372] so water at 33 times the aquatic copper guideline qualifies. Pit lake TDS exceeds the river's background over 90 per cent of

[363] Cook, P.L.M. et al. 2016, "Blooms of cyanobacteria in a temperate Australian lagoon system post and prior to European settlement", *Biogeosciences*, p. 3684.
[364] Holland, D.P. et al. 2012, "Environmental controls on the nitrogen-fixing cyanobacterium Nodularia spumigena in a temperate lagoon system in SE Australia", *Marine Ecology Progress Series*, p. 47.
[365] Cook, P.L.M. et al. 2016, "Blooms of cyanobacteria in a temperate Australian lagoon system", pp. 3683-3684, 3684-3685.
[366] Gell, P.A. and Finlayson, C.M. 2024, *Submission in response to: Gippsland Lakes Ramsar Site Management Plan 2023, Draft for Public Comment*, pp. 3-4.
[367] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.3, Tables 7 to 16; Attachment 3.3, s 2.3, pp. 6-7.
[368] Department of Energy, Environment and Climate Action 2024, *Freedom of information release 5995*; released as "unapproved interim working draft analysis".
[369] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.8.
[370] Ibid., Attachment 3.8, p. 2.
[371] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, pp. 25-15 to 25-16.
[372] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 10, criterion 12, p. 3.

the time [80], so even those criteria would keep the gate shut. The downstream trigger is "the agreed threshold", with no value and no party named.[373]

- **Neither outcome works.** If the criteria are the aquatic guidelines, the gate never opens and the connected option's water quality case falls away. If the gate opens, it releases water above those guidelines.
- **The pit lake rises while the gate is closed.** It acts as a "retarding basin" above RL +45 m, a level the same chapter calls "critical" to stability.[374] The pit lake model lets water out as soon as it "exceeds +45.0 m",[375] so withholding was never modelled.
- **A closed gate defers discharge.** Withheld water must eventually be released, treated or held at a level the EES calls critical. Treatment has not been assessed, and Chapter 8 lists "controlled release" as a contingency.[376]
- **The draft DMRP contradicts itself (Table 7).** Its risk register rates contaminated discharge to the Ramsar wetlands Insignificant and Rare because "there will be no interconnection" if water quality fails. Its monitoring plan lists "controlled release". Its downstream trigger is a threshold "for a specified productive land use".[377]

83. The downstream receptor is Heart Morass. Chapter 25 rates copper sedimentation in the lower Latrobe wetlands "the only pathway with a potential risk greater than low": copper may become bioavailable "during drier years, when water levels fall and pH can drop", threatening amphibians, fish and birds in Heart Morass.[378] The IESC agreed, and added that copper "can also be toxic at high pH" and that aluminium may be toxic.[379] Chapter 25's "At background pH, copper is insoluble" does not answer that. The green and golden bell frog bred in Heart Morass in 2021.[380] The State's study found that reduced inundation and poorer water quality "will have major adverse impacts on frog populations, including the two threatened species".[381] Salinity, drying and copper are the three pathways, and Heart Morass already carries other loads:

Contaminant	At Heart Morass	In the EES
Copper	Receptor for the only pathway rated above low	A gate whose stated criteria omit copper [82]
PFAS	Elevated in ducks, eels and fish; EPA advises against eating fish and game	Relies on an unexhibited audit that found the site "was not a source";[382] attributes the PFAS to the Sale air base; no further risk assessment despite the peer reviewer's request[383]
Mercury	"elevated levels of mercury in Heart Morass and Lake Victoria"[384]	Not modelled; not mentioned in Chapter 25 or Technical Report D

84. The Cooling Pond is to be drained into the pit lake despite the PFAS risk. Its 17.5 GL is to go into the pit lake "if feasible",[385] though the EPA advises limiting consumption of its fish. The

[373] ENGIE Hazelwood 2026, *Technical Report C1*, p. 158.
[374] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-52; Chapter 4, p. 4-22.
[375] ENGIE Hazelwood 2026, *Technical Report C1*, p. 90.
[376] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 8, Table 8-3, WQMC01, p. 8-13.
[377] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Appendix I, Risk 36; Appendix C, WQMC01, p. 10; Appendix C, WQMC04, p. 11.
[378] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-16.
[379] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 20.
[380] Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 4.
[381] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 41.
[382] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-17.
[383] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.8, Table 1, item 5.
[384] East Gippsland Catchment Management Authority 2024, *Gippsland Lakes Ramsar Site Management Plan*, p. 105.
[385] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, Table 4-4, p. 4-20; ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239*, p. 2.

Commonwealth noted that PFAS "are present within the mine void, and almost any concentration of PFAS released into the environment is likely to exceed applicable regulatory standards".[386]

85. No environment protection instrument governs the weir discharge. Chapter 5 identifies none, though the Ramsar site's plan lists mine rehabilitation among its water quality threats, rating the toxicant risk Medium and adding that "planning should consider future risks".[387] The August 2024 EPA risk-of-harm audit, apparently the AECOM "Mine Void - Part 2" audit,[388] sits outside the EES. In 2021 ENGIE itself listed an EP Act "Development licence for water discharges from site" among the approvals it would seek.[389] MIN5004's requirement that discharges be "as free as possible of pollutants"[390] ends when the DMRP takes effect (s 121C), leaving only the DMRP's pH, TDS and turbidity tests [82].

What FoGL seeks

86. FoGL requests that the IAC:

- direct the further information at [214], items 1 to 8 and 11;
- recommend that no authorisation be granted to take the above-cap flood flows [216] to [219];
- recommend a take rule for the Tyers, and that the groundwater licence not be varied to support filling, drought fallback or top-up without assessment [220], [221]; and
- recommend a drought trigger for the fill and downstream monitoring with thresholds for action [223].

[386] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 61.
[387] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, pp. 126, 137.
[388] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 12, Table 12.2, item 96.
[389] ENGIE Hazelwood 2021, *Referral 2021-R06*, Attachment 2.
[390] Earth Resources Regulation n.d., *Mining Licence MIN5004 (as amended)*, conditions 5.1 and 5.2; ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 5, p. 14.

Part D: The controlling provisions

Finding sought. On each controlling provision, the EES's conclusion of no significant impact is not supported. The sustainable-level limb of the water trigger is not applied. The Ramsar site is assessed against superseded limits, with no drying-duration analysis and no test timed to when its fish spawn and migrate; its flow tests register only runs of years with no event, or the near-total loss of a baseflow. The bittern, the Australian Painted Snipe, the Grayling, the Growling Grass Frog and the listed shorebirds are not assessed where the take reaches them, though the Commonwealth rates changed water regimes a Very High risk to three of them. Avoidance the EES and the IESC identify is not taken, and the conclusion of no material impact on MNES depends on measures others must deliver ([211](i), (k), (m); [224]; Points 9 to 18). Headline issues 2, 3 and 6.

In short: each controlling provision is taken in turn: the test, what the project does, the EES's conclusion and why it does not hold. Avoidance, mitigation and offsets follow in D5, and what FoGL seeks in D6.

D0 What the Commonwealth found in 2023

87. The Ramsar site is a sensitive environment on the Commonwealth's own evidence. Under the Significant Impact Guidelines, significance depends on "the sensitivity, value, and quality of the environment which is impacted".[391] The Commonwealth's vulnerability study by CSIRO finds:

- that under its 2050 "greatest plausible change" scenario, which assumes effective management, the system "is vulnerable to significant declines in freshwater components", with exceedance of the current limits "possible for about half the CPS, indicating a change in the ecological character of the site is likely";[392]
- that the lower Latrobe wetlands' named climate driver is drought,[393] and their persistence "will depend on... the ability to maintain freshwater inflows to the fringing wetlands";[394] and
- that the first management response is to "secure and manage freshwater inflows".[395]

An action that reduces those inflows works against the management on which the site's remaining character depends.

88. The Commonwealth has already identified the likely impacts this assessment had to examine. In deciding that the project is a controlled action, on advice from the Office of Water Science and the Commonwealth Environmental Water Office, the delegate found:

- that the Latrobe system "is already under significant stress from water shortage", with insufficient water for both the environment and the fill ([43]);[396]
- that "a substantial and measurable change in the hydrological regime of the Gippsland Lakes is likely", as is a change in their "physico-chemical status", through bioaccumulation and saltwater ingress;[397]
- that the action "will seriously affect the habitat or lifecycle of native species dependent on the wetland";[398] and
- that the site "is already under threat", and "any further reduction in freshwater flows and reduced water quality will exacerbate that threat".[399]

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[391] Department of the Environment 2013, *Significant Impact Guidelines 1.1*, p. 2.
[392] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site*, pp. v-vi, 80.
[393] Ibid., Table 13, p. 88.
[394] Ibid., p. 105; see also p. 110.
[395] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site*, p. vi.
[396] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 57.
[397] Ibid., para 74; paras 75-76.
[398] Ibid., paras 77-78.
[399] Ibid., para 80.

89. The EES has not answered those findings. The delegate applied the precautionary principle, noting that "no scientific modelling and detailed analysis has been undertaken on potential changes to the hydrology of the Ramsar site".[400] The findings do not decide approval, but they define what this assessment had to examine. The EES measured an increment over a baseline that already contains the take (Part B), and reported flow changes as percentages of mean annual flow rather than on the State's wetland measures [58]. It left drying duration uncomputed [99], and answered saltwater ingress with a sentence [109]. A controlled action decision is a threshold finding and places no formal onus on the proponent. But the Commonwealth's guidelines do not let uncertain mitigation fill the gap [147].

D1 A water resource (ss 24D, 24E)

90. The test reaches the river, the estuary and the species that depend on them. Under Guidelines 1.3, an impact on a water resource is significant if it changes the resource's hydrology or water quality enough to reduce its utility "for third party users, including environmental and other public benefit outcomes", or enough "to create a material risk of such reduction in utility occurring" (s 4.2, p. 10). That utility includes "maintenance of ecosystem function", which includes "support for the biological diversity or species composition of the water resource". Changes in hydrology include "the timing of variations in water quantity"; the flow regime is its "volume, timing, duration and frequency"; and "substantial changes to water flows or water quality in estuaries" are expressly included.[401] A change in water quality that "seriously affects the habitat or lifecycle of a native species dependent on a water resource" is one of the ways an impact can be significant.[402] That limb applies where there is a risk that the ability to achieve local or regional water quality objectives would be materially compromised (s 4.4, p. 12). The connected pit lake's predicted salts, at more than four times the river's objective [80], and its copper [83] raise that risk.

91. On the EES's own evidence, each limb is engaged. The findings in Part C apply here and are not repeated:

- **Hydrology.** Under the fast fill and medium climate, the Tyers' mean annual flow falls 15 per cent and its 5th-percentile flow 47 per cent [61], and winter freshes, bankfull and overbank flows at Thoms Bridge become less frequent [60].
- **Timing.** No test in the EES is timed to the freshes that cue fish migration and spawning [60], though the site's fish need flow or salinity cues in every month [118], and its baseflow tests register only the near-total loss of a baseflow [117].
- **The estuary.** The project raises Lake Wellington's salinity by about 0.67 ppt on average, and by 1.8 ppt in 2019 [107], [108].
- **Water quality.** The connected pit lake exports metals, salts and nutrients toward Heart Morass and Lake Wellington [76] to [83].
- **Native species.** The lower Latrobe Grayling, an important population, spawns on rising flows [134]; the estuary's resident and migratory fish depend on freshwater inflows [116]. These go to the hydrology limb: the resource's utility includes "support for the biological diversity or species composition of the water resource" [90].
- **Cumulative effects.** The three mines' takes were modelled, then removed from view [71] to [75].

92. The water trigger (Significant Impact Guidelines 1.3). The EES never applies the sustainable-level limb. An action is more likely to be significant where its water use "exceeds the environmentally sustainable level of extraction".[403] Chapter 25 answers that the water is authorised under Gippsland Water's 1997 conversion order, and that the project was referred. Guidelines 1.3 gives that answer limited weight. Water authorised through entitlements under a state water plan "prepared in accordance with the requirements of the NWI", the 2004 National Water Initiative, makes an action only "less likely to require a referral", and this action has been referred and found controlled. The same passage excepts water use above the sustainable level (s 4.3.1, p. 12). And the

[400] Ibid., para 81.
[401] Department of Climate Change, Energy, the Environment and Water 2022, *Significant Impact Guidelines 1.3*, ss 4.2, 4.2.1 and 4.3, pp. 10-12.
[402] Ibid., s 4.4, p. 13.
[403] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-37.

State's water plan for the region, made under its commitment to the Initiative, leaves this water out: it does "not consider potential water sources for mine rehabilitation in the Latrobe Valley" [34].[404] The Guidelines define the sustainable level as the level which, if exceeded, "would compromise key environmental assets, or ecosystem functions and the productive base of the resource" (Glossary, p. 25). Their rule for intensified extraction, which applies the trigger to the whole where the increment "cannot be identified separately from the existing extractive activities" (s 3.2.1 and Example 5, pp. 7, 8), illustrates why the full take is the action [24], [38]. The EES's own baseline supplies the answer:

- a Latrobe environmental shortfall of 129 GL/yr;[405]
- a Tyers environmental water deficit of 32,000 ML a year, where more water is "urgently needed to maintain water quality and prevent the critical loss of species", and the State's 13 GL return has not started;[406]
- a basin where the environment's share is already disproportionately reduced [40];
- the State's findings that, under a dry climate, river water "would not be available for mine rehabilitation because it would have unacceptable impacts on other existing entitlement holders and minimum environmental flows", and that "Failure to deliver minimum flow requirements in the Latrobe River would likely result in unacceptable impacts";[407]
- a basin its local management plan records as "fully allocated";[408]
- cumulative effects removed from view (Part C, [71] to [75]).

93. The large coal mining threshold has already been decided against the proponent. It had said the project "does not involve coal seam gas or coal mining development".[409] The delegate found it "integral to mining", and so a large coal mining development. The delegate also found it likely to reduce "the current or future utility of the water resource for third party users, including environmental and other public benefit outcomes".[410]

94. The IESC's advice goes to this provision. The IESC's remit is water resources. On them it strongly recommended the unconnected option [70], found that the conclusions "downplay the predicted reduction" in the Tyers [61], asked for dry-climate results and alternative inflow sequences that the proponent declined (Table 3), and said climate and water use "act collectively and must be considered together" [75]. Its finding that the Ramsar risk assessment was adequate is addressed at [124].

D2 The Ramsar wetland (ss 16, 17B)

The revised limits and drying

95. The EES assesses the site against limits the State has revised. It uses the limits in the 2010 Ecological Character Description. With the 1999 Ramsar Information Sheet, that Ecological Character Description remains the formal description in the Commonwealth's record, but it is no longer the State's. In 2023 DEECA published an Addendum revising most of the limits on "new information".[411] The Commonwealth department's ecological character description page records the Addendum. The 2024 Management Plan calls it "The current ECD Addendum",[412] and assesses the

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[404] Department of Environment, Land, Water and Planning 2022, *Central and Gippsland Region Sustainable Water Strategy*, pp. 12, 294.
[405] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-12.
[406] Department of Environment, Land, Water and Planning 2022, *Central and Gippsland Region Sustainable Water Strategy*, p. 228; Department of Energy, Environment and Climate Action 2025, *Sustainable Water Strategy 2024-25 Progress Report*, Policy 8-15, p. 19.
[407] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, pp. 12, 53.
[408] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 9, citing Southern Rural Water's Latrobe Basin Local Management Plan (2014).
[409] ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239*, p. 21.
[410] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, paras 53-54; para 67.
[411] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 2.
[412] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, p. 8.

site against its presence limits for the bittern and the listed shorebirds. The proponent knew of it: Technical Report H1 (ecology) cites it.

96. Formal status does not decide the EPBC question. That question is whether there is a real chance of a substantial and measurable change in the site's character, not whether a limit in a particular document is breached. The documents themselves treat their limits as tools:

- The 2010 Ecological Character Description calls its limits "a tool by which ecological change can be measured", most of them "subjectively derived", to be revised "with improved data and understanding".[413]
- The 1999 Information Sheet "has not been updated" and points to later descriptions,[414] despite Australia's commitment to six-yearly updates.

The assessment should use the best available description: the one the State prepared, the Commonwealth department acknowledges, the management plan adopts and Technical Report H1 cites. The Australian Government has described the Gippsland Lakes description in correspondence as a "static document",[415] but a static description cannot carry limits its own authors expected to be revised as understanding improves. At the least, it should test the project against both. The legal benchmark is the same under either. The Commonwealth's guidelines define ecological character as what characterises the wetland "at a given point in time", which "refers to the time of designation for the Ramsar List" (Guidelines 1.1, p. 13). Both descriptions are evidence of that character; neither replaces it.

97. Table 4's comparison rests on the current Addendum. It was published in 2023, and reissued in 2024 to reflect the January 2024 changes to the threatened shorebird listings.[416][417] The changes it relies on are:

- the drying-duration limits;
- the removal of the Lake Wellington typology and of the Dowd Morass salinity limits;
- the habitat-mosaic tests;
- the native fish component;
- annual bittern presence.

FoGL's point about the shorebirds does not depend on any ecological character description [130].

98. The key change is to the hydrological limit, which now measures how long the wetlands stay dry. In 2010 it was expressed as wetting and flushing frequencies. Sale Common "shall not remain dry for more than 36 continuous months", and Dowd and Heart Morass not for "greater than 60 continuous months".[418] The 2010 values are now "aspiration targets".[419]

99. The EES computes no drying-duration statistic for any wetland. It asserts that wetting and flushing frequency "is maintained by the operation and maintenance of regulators and levees".[420] It sets drying aside as "the result of water management" and "beyond the control of Engie Hazelwood".[421] Chapter 11 concedes that "the risk of extended drying cannot currently be accurately predicted". Yet the EES's baseline records that Sale Common "was dry between 1997 to 2011":[422] the kind of event the current limit is written for. WGCMA's 2026 objective is that "Sale Common will

[413] BMT WBM 2010, *Ecological Character Description*, pp. 116-118.
[414] Australian Government 1999, *Ramsar Information Sheet: Gippsland Lakes*, p. 1.
[415] Gell, P.A. et al. 2026, "Ecological character under the Ramsar Convention on Wetlands: a sea anchor or a raft of options?", *Wetlands*, p. 6.
[416] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 1.
[417] Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 3, pp. 10-15; East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, Table 5, p. 37.
[418] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 14; East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, p. 37.
[419] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 14.
[420] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-19.
[421] Ibid., Chapter 25, p. 25-14; ENGIE Hazelwood 2026, *Technical Report D*, p. 200.
[422] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-15; Chapter 25, p. 25-12.

remain a freshwater wetland and within defined Limits of Acceptable Change".[423] Without a drying-duration statistic, the EES cannot show that the project is consistent with it.

100. Drying is not simply a matter of water management. The management plan records that reduced inflows compromise wetland watering "as the salt wedge in the Latrobe Estuary is increasingly pushed upstream above the water inflow points for wetland watering".[424] Even the 2010 limit is measured at river gauging stations.[425] Under either set of limits, compliance depends on river flow, which the EES asserts but does not compute. Technical Report D records that in 2019 Sale Common was colonised by giant rush, and that "Low water levels and saline intrusions in the river system prevented the watering of the wetlands to prevent such colonisation".[426] WGCMA reports concern that river water beside the wetland inflow points is "increasingly brackish to saline",[427] and notes that its estimates of the wetlands' water deficits "do not take account of the flows in the Estuary required to ensure that the salt wedge occurs downstream of the inflow structures".[428]

101. The wetland infrastructure the EES relies on is neither specified nor secured. Chapter 25 says it "has been committed",[429] and Technical Report D (catchments, rivers and wetlands) that it "has been proposed and/or committed to",[430] without identifying the works, the funder, the timing or the operating flows. If infrastructure rather than river flow is to protect the wetlands, it is a project measure, and should be specified and secured as one [225]. WGCMA's 2026 strategy is more guarded. Upgrades at Heart Morass and Dowd Morass are funded and expected in 2026 and 2027, but "Funding is still being sought for Sale Common including the proposed new inlet structure at McArdle's Gap on the Thomson River".[431] WGCMA costs that inlet at $2 million, alongside $4 million for fish passage on the Tyers and $15 million to address constraints on environmental water delivery, and expects to draw on "mine rehabilitation and transition-related funding opportunities, offsets" among other sources.[432] The State's 2025 progress report records the works as funded and on track for 2027, including a Sale Common inlet upgrade, with the McArdle's Gap work at technical assessment.[433] Works the State funds under its own strategy are not mitigation of this take.

102. Managed watering does not take the drying outside the project's effects. Where a project reduces the flows on which wetland watering depends, an impact includes an indirect consequence of which the action is a substantial cause. Whether the project is such a cause, in combination with water management, is what a drying-duration analysis would show.

103. Other limits have changed too, and the EES applies none of the new versions.

- The Dowd Morass salinity limit it relies on was removed as "not justified", and replaced with a balance of open water, emergent and woody vegetation. Sale Common carries the same test, and its open water fell from 51 to 9 per cent between 2016 and 2020.[434]
- The threatened frog limit now requires breeding at least once in five years. The green and golden bell frog bred in Heart Morass in 2021,[435] the receptor for the copper pathway.
- Native fish is a new critical component.[436] The EES assesses instead the fisheries value the Addendum retired.[437] The Ramsar plan's target, as WGCMA's 2026 strategy records it, is to "Maintain fish diversity for species within each of the following life history strategy: estuarine

[423] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 51.
[424] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, pp. 49, 140.
[425] BMT WBM 2010, *Ecological Character Description*, Table 4-1, p. 123.
[426] ENGIE Hazelwood 2026, *Technical Report D*, p. 201.
[427] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 35.
[428] Ibid., p. 37.
[429] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-14.
[430] ENGIE Hazelwood 2026, *Technical Report D*, p. 200.
[431] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 55.
[432] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy: Summary Paper*, p. 7.
[433] Department of Energy, Environment and Climate Action 2025, *Sustainable Water Strategy 2024-25 Progress Report*, Action 8-17, p. 15.
[434] Hale, J. 2024, *Addendum to the Ecological Character Description*, pp. 12, 11; Table 4, p. 17.
[435] Ibid., p. 13; Table 4, p. 18.
[436] Ibid., p. 14.
[437] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-20; Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 5.

dependent, estuarine opportunists, marine migrants, diadromous, and obligate freshwater species".[438] Technical Report D gives migration and spawning times by species: Australian grayling, for example, move downstream to spawn from February to May, "triggered by a high flow event",[439] and WGCMA credits environmental water "delivered in autumn 2015" with providing "the spawning trigger the species needed" in the Latrobe.[440] Technical Report D does not set those windows against the timing of the take or of flood harvesting. The Commonwealth's advice adds that Grayling "will not release eggs if no, or less than expected, river flow occurs during their expected spawning season", and that the first successful breeding recorded in the Latrobe followed an environmental water release in 2015.[441] The site's fish are taken up at [115] to [121].

- For Criterion 2, the EES lists "Two frogs, one fish and three flora species".[442] The current description lists a threatened community, ten fauna species and one flora species.[443]

104. FoGL's case does not depend on whether the site has already changed character. The 2022 assessment found all limits met or likely met, with Sale Common salinity unassessable,[444] and the 2024 plan found "no evidence... of an exceedance of a LAC".[445] That finding is thinner than its headline:

- Black swan abundance sat exactly at its limit, 0.3 per cent of the population.[446]
- The bloom limit, unchanged since 2010, was met on extents the assessment calls "difficult to determine", after successive-year blooms in 2010/11 to 2011/12 and 2017/18 to 2019/20.[447] It is breached only when a single cyanobacterial bloom covers more than 10 per cent of the four lakes combined in two successive years, and the assessment finds "several blooms that covered more than 10% of the Lakes in the past two decades, but not in successive years".[448]
- Sale Common's salinity could not be assessed, the last data being 2017 spot samples; a meter was installed only in 2022.[449] The wetland was dry for 18 months before 2019/20, half its 36-month limit.[450]
- Several findings rest on single records or unpublished data, and the revised frog, fish and waterbird breeding limits carry low confidence.[451] Most of the data end in 2021, before the 2024/25 and 2025/26 salinity rebound (Annex 1, section 1.2).

The Addendum treats Lake Wellington as misclassified as freshwater at listing, all four main lakes being permanent saline lakes.[452] Even the 1999 Information Sheet lists it among "permanent deep saline wetlands".[453] Chapter 25 still assesses a change "from a permanent freshwater lake".[454] The correction removed the lake's only limit [105]. FoGL's claim is that the EES tested the project against limits the State has revised, and did not compute the quantities the revised limits turn on.

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[438] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 83.
[439] ENGIE Hazelwood 2026, *Technical Report D*, p. 119.
[440] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy: Summary Paper*, p. 3.
[441] Threatened Species Scientific Committee 2021, *Conservation Advice: Prototroctes maraena, Australian Grayling*, pp. 5-6, 13.
[442] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, Table 25-4, p. 25-8.
[443] Hale, J. 2024, *Addendum to the Ecological Character Description*, pp. 2-3; East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, p. 25.
[444] Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 4, pp. 16-19.
[445] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, p. 35.
[446] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 18.
[447] Ibid., p. 17.
[448] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 17.
[449] Hale, J. 2024, *Addendum to the Ecological Character Description*, pp. 16-17.
[450] Hale, J. 2024, *Addendum to the Ecological Character Description*, pp. 17-18.
[451] Ibid., pp. 13-19.
[452] Ibid., p. 10.
[453] Australian Government 1999, *Ramsar Information Sheet*, p. 9.
[454] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-18.

Others go further. Assessing a third-party notification under Article 3.2 of the Ramsar Convention, the Australian Government concluded that a change in ecological character "is possible for some critical components since listing in 1982", but that its cause could not be established on present data, and took no action because no limit had been breached.[455] Peter Gell and Max Finlayson, the latter a technical adviser to the Convention since the early 1990s, argue that measurable change in Lake Wellington, to which upstream abstraction is a likely contributor, should have been notified.[456] FoGL's case does not depend on that view, but it shows how far the trajectory of a site the EES treats as settled is in contention. WGCMA's 2022 review, by the author of the 2024 Addendum, found that "the Limit of Acceptable Change has been exceeded" for Lake Wellington's wetland type: annual average salinity, about 3 to 10 ppt around listing, had exceeded 10 ppt in 11 of the previous 20 years. It found that a flushing flow "did not occur between 2012 and 2021" at Sale Common, "suggesting an exceedance" of its 2010 limit of two to three a decade. It attributed the change in character to "the joint effects of water extraction (which has occurred post listing) and rising sea levels", and noted that for human-induced change signatories have an obligation "to restore character wherever possible".[457] The Addendum then removed that limit [105], and made the Sale Common limit an aspiration target [98]; the measurements behind the 2022 findings stand.

105. Lake Wellington has no limit to trigger. The 2010 description's only limit for the lake was its wetland type, and WGCMA's 2022 review found it exceeded: annual average salinity of about 3 to 10 ppt at listing had exceeded 10 ppt in 11 of the previous 20 years [104]. The Addendum removed the limit as a misclassification and did not restate it in salinity terms; its class, "permanent saline lakes", spans both ranges.[458] No current limit is specific to Lake Wellington or tests its salinity. The EES's finding that no limit is triggered [123] therefore says nothing about the water the take affects most, and Chapter 25 measures change from a type the lake never had [104]. FoGL asks that the project's increment be judged against the lake's salinity at listing, whichever description the Commonwealth applies ([96], [125]; Guidelines 1.1, p. 13).

Salinity

106. The State's own reports describe a lake and wetlands becoming more saline.

- The 2024 Management Plan records "realised, measurable changes in Lake Wellington and several variably saline wetlands such as Dowd Morass and Lake Coleman", declining paperbarks, and a "marked decline in the extent of common reed" since listing. It expects Lake Wellington's salinity "to continue to increase" as sea levels rise and water extraction continues, driven in part by "several large-scale projects that threaten to increase water extraction from the system", and Sale Common, without intervention, to see "Increased salinity (brackish) and longer periods of dry".[459]
- The Strategy's water study reached the same view in 2020: some Ramsar wetlands at the lower end of the Latrobe system "have undergone significant salinisation in recent years due to insufficient freshwater flushing", and "Sustained shortfalls in minimum flow requirements are likely to result in ongoing salinisation of previously freshwater wetlands".[460]
- Its risk assessment rates increased salinity a High risk to the native vegetation of the variably saline fringing wetlands, "a critical threat to a large number of the fringing wetlands", and to their threatened frogs: "Increased salinity reduces habitat for frogs".[461] It rates it a High risk, too, to "breeding triggers for black bream and other estuarine fish" in Lake Wellington and the

[455] Gell, P.A. and Finlayson, C.M. 2024, *Submission on the draft Ramsar Site Management Plan*, p. 2; Gell, P.A. et al. 2026, "Ecological character under the Ramsar Convention", p. 5.
[456] Gell, P.A. and Finlayson, C.M. 2024, *Submission on the draft Ramsar Site Management Plan*, p. 4.
[457] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 1, 4, 12, 24.
[458] Hale, J. 2024, *Addendum to the Ecological Character Description*, pp. 10, 16-17; Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 1, 12.
[459] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, pp. 31, 50.
[460] Department of Environment, Land, Water and Planning 2020, *Latrobe Valley Regional Rehabilitation Strategy*, Regional Water Study Synopsis Report, Key findings, p. 53.
[461] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, Table A-4, p. 140.

other shallow lakes, noting that black bream "are likely to be on a trajectory of decline, with the last large recruitment event nearly three decades ago in the late 1980s".[462] The black bream fishery is one of the values for which the site is listed, under Criterion 8.[463] [129] sets out the rest of the risk assessment.

- **Sale Common** is one of "only two large freshwater wetland complexes remaining in the Gippsland Lakes".[464] Its limit of acceptable change is an annual median salinity of no more than 1 ppt in two successive years, which the latest assessment could not test: "Insufficient data to assess LAC for Sale Common".[465] Keeping it fresh depends on fresh water at its Latrobe inlet. The plan rates the salinity risk there Medium, recording that its water has "remained fresh" to date, but that when the salt wedge moves past the structure connecting it to the river, "it may affect the ability of site managers to direct freshwater into the wetland".[466]
- The plan attributes the decline in common reed since listing to "altered water regimes (a decline in freshwater inflows) increased tidal exchange and increases in salinity", and records that "Increases in salinity, coupled with high wave action have resulted in a decline in common reed around Lake Wellington and increased vulnerability to erosion".[467] On water regimes, it concludes: "In the context of climate change, protection of all freshwater inflows (including flood waters and environmental water) into the Gippsland Lakes is important as it plays a crucial role in maintaining the ecological character of the Ramsar Site".[468]
- **The mechanism.** WGCMA's 2022 review explains why less inflow matters twice: "low river inflows not only mean that less fresh water enters Lake Wellington but they also allow more marine origin water to enter from McLennan Strait because water levels are lower in the Lake". Modelled over 1965 to 1991, full use of entitlements raised the lake's average salinity from about 6 ppt to 9 ppt, and the high salinity of the 1967-68 drought is "believed to be the primary cause of the loss of Vallisneria and much of the fringing common reed". Dredging at the entrance is not the cause: there are "multiple lines of evidence that confirm that dredging does not affect salinity in the Gippsland Lakes".[469]
- **The fringing wetlands.** Saline water from Lake Wellington entered Dowd Morass twice on record before 2000, and "nearly every year since 2007". Heart Morass averaged about 5,900 µS/cm from 2017 to 2021, against 1,393 µS/cm in 1991 to 1993. At the Swing Bridge, a few hundred metres upstream of Sale Common's inlet, the estuary is now fresh through the whole water column about half the time, against 76 per cent of the time under natural conditions.[470]
- The 2024 Environment Report rates Lake Wellington's salinity "poor", with "a longer term trend of increasing salinity, largely in response to reductions in freshwater inflows, but also influenced by rising sea levels".[471] The 2021 Technical Report traces the decline to the permanent entrance, "exacerbated by activities in the catchment and water resource use". At Dowd Morass, low Latrobe flows let more saline water in, and "large floods are required to fully flush salts out of the system".[472]
- Salinisation also carries a bloom risk. Nodularia, the toxic cyanobacterium behind the Lakes' closures, blooms at salinities "typically in the range of 9–20 PSU".[473] It is "mostly absent from

[462] Ibid., Table A-2, p. 118.
[463] Ibid., p. 27.
[464] Ibid., p. 30.
[465] Ibid., Table 5, p. 36.
[466] Ibid., Table A-3, p. 128.
[467] Ibid., pp. 31, 121.
[468] Ibid., p. 70.
[469] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 5, 10-11.
[470] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 26, 33, 37.
[471] East Gippsland Catchment Management Authority 2024, *Gippsland Lakes Environment Report 2024*, p. 30.
[472] East Gippsland Catchment Management Authority 2021, *Gippsland Lakes Environment Report 2021: Technical Report*, pp. 65, 18.
[473] Cook, P. and Smith, J. 2024, *Floods, fires and phytoplankton: some perspectives on water quality in the Gippsland Lakes*, p. 3.

Lake Wellington due to generally low salinity".[474] Lake Wellington's median was 19.0 PSU in 2019, and 11.0 and 12.0 PSU in the last two years (Annex 1, section 1.3). A more saline lake moves into that window, which is how the project bears on limits that are met today. Salinity is not the only condition. Nodularia takes its own nitrogen from the air, so it gains an advantage when the water is short of nitrogen and phosphorus is available, typically after calm, warm spells let bottom waters lose oxygen and the sediments release phosphorus.[475] Within that salinity window, whether a bloom follows depends on the weather and on the balance of nitrogen and phosphorus.

107. The project permanently raises Lake Wellington's salinity. Technical Report D predicts the project lowers Lake Wellington's mean annual inflow by 7.2 per cent and raises its mean salinity by about 0.67 ppt, or by 0.15 to 1.95 ppt in individual years.[476] Chapter 25 calls this hastening salinisation "by only a few months", while accepting that salinisation through reduced flushing "would be a permanent impact".[477]

108. The proponent's own salinity analysis cuts against its conclusion.

- **Cause:** its regression attributes "the vast majority" of the 1977 to 2019 increase to inflow.[478] Chapter 25 attributes the trend to the permanent entrance.
- **Dry years:** the increment is 1.8 ppt in 2019, the lowest-inflow year, against 0.1 ppt in 1993,[479] and only the median climate was run.
- **Risk:** a "certain" change is rated "insignificant" and "low" because it accelerates salinisation "by less than six months". Technical Report D applies the six months to a rise of about 0.7 ppt (0.67 ppt in Attachment 3.2); Attachment 3.2 applied it to an average rise of 0.09 ppt over the filling period (Annex 1, section 1.4).[480] The same six months cannot fit both. For 0.67 ppt, it would need Lake Wellington to be salinising at 13.4 PSU a decade: more than twice the raw rate over 1990 to 2009, which took in the Millennium Drought, and more than 50 PSU over the 1977 to 2019 period of the proponent's own regression, for what the EES describes as a process of several decades (Annex 1, section 1.4).
- **Inflow:** the 7.2 per cent reduction compares with 1.3 per cent at Swing Bridge and 2.3 per cent at Rosedale,[481] and needs explaining (Q9).
- **Timescale:** on EPA's record, allowing for inflow, Lake Wellington is salinising at about 0.74 PSU a decade. The mean increment therefore equals six to twelve years of the observed rise, and even one-fifth of it equals one to two years (Annex 1, section 1.4). This is FoGL's least certain salinity result (section 1.10), but a slower rise would make the increment equal more years, not fewer. The sampling limits in Annex 1, section 1.1 add uncertainty to the rate, and the Lake Wellington trend does not survive correction for multiple testing (section 1.10).

109. Saline intrusion is not "independent" of a project that raises the adjacent lake's salinity. The IESC listed reduced flushing flows that increase saline intrusion into Sale Common as a key impact "in all scenarios".[482] It recorded the proponent's own rating of that intrusion, though "deemed unlikely", as a "critical ecological consequence".[483] The proponent's full answer is that "this risk is independent of the Hazelwood Rehabilitation Project".[484] The connected option also further

[474] West Gippsland Catchment Management Authority 2018, *Lake Wellington plan, Technical Appendices*, p. 25.
[475] Cook, P.L.M. et al. 2016, "Blooms of cyanobacteria in a temperate Australian lagoon system", pp. 3683-3684; Holland, D.P. et al. 2012, "Environmental controls on Nodularia spumigena", p. 47.
[476] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.2, p. 4.
[477] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-15; Chapter 25, p. 25-14.
[478] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.2, Table 1, p. 4.
[479] Ibid., Attachment 3.2, p. 4.
[480] Ibid., s 8.2.3.3, p. 204; Attachment 3.2, s 5.3, p. 12.
[481] Ibid., Table 72, p. 181.
[482] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, Summary, p. 2; Table 2, p. 9.
[483] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 26.
[484] ENGIE Hazelwood 2026, *Attachment VI*, p. 14.

reduces the flood events whose decline has helped raise Lake Wellington's salinity (Part C, [65] to [70]).[485]

110. Marine pressure makes the increment more significant, not less. At Lakes Entrance, a high sea-level event that was a 1-in-100-year event on the 1986-2005 baseline is projected to recur every 1.5 to 2.3 years by 2050 under high emissions, and "up to 100 times per year by the end of the century".[486] The salt wedge is increasingly pushed upstream above the inflow points that water Heart and Dowd Morass. The entrance adds to that pressure. Deepened in 2008 to more than 5 m and kept open by a dredge, it is estimated to carry over 20 GL of water each tidal cycle, and peer-reviewed work published this year finds the Lakes' long shift toward a tidal system accelerating with the deeper opening and greater tidal exchange.[487] Under the Significant Impact Guidelines, adding salinity to a system already driven toward its limits from the marine side is a more significant contribution, not a smaller one. Nor can Chapter 25's entrance explanation be tested on existing modelling (Annex 1, section 1.2).

111. The Commonwealth and the proponent's own referral both said small flow changes matter here. The Commonwealth's advice was that, given the seawater intrusion the Lakes already face, "small changes in the surface water regime may have a much larger impact than if the system was in a more natural state". It added that the resulting salinity "is likely to impact aquatic vegetation and fish breeding cycles".[488] The proponent's referral agreed that reduced flows "have the potential to exacerbate the already reduced frequency and duration of flows that flush salinity". It answered "Yes" to whether the impact on the Ramsar site was likely to be significant, "Taking a precautionary approach".[489]

112. FoGL frames this as a contribution to a documented trend, not a crossed threshold. But thresholds here are real. Extreme events in the 1960s caused "a step change in the chemistry and ecology of Lake Wellington that persists to this day", and CSIRO lists thresholds and irreversible change among the key unknowns.[490] Peter Gell and Max Finlayson describe the best available science as showing the Lakes gradually becoming "a saline, eutrophic system at risk of critical transitions to unprecedented states".[491] Where serious or irreversible damage is threatened, lack of full scientific certainty is not a reason to postpone measures to prevent it. That is the precautionary principle, which the Minister must take into account in deciding whether to approve the action (ss 3A(b), 136(2)(a), 391).

113. The measured trajectory confirms the direction. On EPA's record to May 2026, allowing for inflow, salinity is rising at every main-lake site by 0.7 to 1.9 PSU a decade, and the rise holds on the validated record from 2000. For the same inflow, the lakes' salinity is 1.8 to 3.3 PSU higher than in the 1990s (Annex 1, section 1.2). Inflow explains about 70 to 80 per cent of salinity variation, and it is the driver within management control that the project reduces (section 1.3).

The birds show the same shift. BirdLife East Gippsland's twelve-year survey finds declines "primarily in species favouring freshwater habitats", and increases in species "tolerant of saline habitats", "consistent with the increasing salination" of the site.[492] Among the declines is the Australasian grebe, named in the EES's 2010 waterbird limit, whose breeding-season abundance fell significantly over 2012 to 2023.[493]

114. The take removes the largest share of flow when the site is most needed as a drought refuge. The site is listed in part as a drought refuge. Duck and herbivore abundance on the Lakes rises after dry months, the reverse of the pattern elsewhere in eastern Australia, making the Lakes

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[485] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 42.
[486] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site*, pp. 62-63, Table 10.
[487] Gell, P.A. et al. 2026, "Ecological character under the Ramsar Convention", pp. 4-5.
[488] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 60; paras 77-78.
[489] ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239*, pp. 17-18.
[490] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site*, pp. 80, vii.
[491] Gell, P.A. and Finlayson, C.M. 2024, *Submission on the draft Ramsar Site Management Plan*, p. 4.
[492] Healey, C. 2026, *Species Richness and Abundance of Wetland Birds in the Gippsland Lakes: Report on the First Twelve Years of the GLIBA Project 2012-2023*, p. 6.
[493] Ibid., pp. 31, 83, 102.

"an important refuge for wetland birds in periods of below-average rainfall".[494] The project's effect is greatest in dry years [108]. The report adds that extracting more Latrobe water for mine rehabilitation "is likely to add further pressure on the ecological character of the Gippsland Lakes".[495] The bittern's recovery plan gives a Gippsland precedent for the salinity pathway: at the mouth of the Snowy River, siltation "has caused the back flow of saline water which has destroyed the species' reed-bed habitat in Lake Corringle", and the bittern "is no longer found at this location".[496]

Criterion 8 and the site's fish

115. The site is listed for its fish, and the test covers them whether or not they are listed. The Gippsland Lakes are listed under criterion 8 because the site "Provides important habitats, feeding areas, dispersal and migratory pathways, and spawning sites for numerous fish species".[497] The Ramsar test asks whether there is a real chance of "the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependant upon the wetland being seriously affected" [16]. That covers all native species, not only listed ones, and the 2024 Addendum makes native fish a critical component of the site's character [103]. Chapter 15 confines its assessment criteria to listed species;[498] the Ramsar test does not.

116. The EES names the fish that depend on the flows, then tests none of their needs. It lists Australian Grayling, Tupong, Short-finned and Long-finned Eels, Broad-finned, Common and Spotted Galaxias, Australian Bass, and Pouched and Short-headed Lampreys as estuarine-dependent freshwater species, and Estuary Perch, Black Bream, River Garfish, Eastern Blue-spot Goby and Lagoon Goby as estuarine residents, "all of which depend on freshwater inflows for survival".[499] Six things can seriously affect these fish, and the take touches each of them:

Pathway	The EES's conclusion	The gap
1. Flows	Accepts that the higher flow recommendations are met less often at Thoms Bridge (Chapter 11, p. 11-30), but rates the risk to listed fish "unchanged compared to baseline conditions" (p. 11-31)	Counts runs of years with no event, with no events-per-year test, and tests the Swing Bridge against the recommendations for the river upstream, not the estuary's own [60]
2. Salinity and stratification	The project will not "significantly accelerate the ongoing change of Lake Wellington from a permanent freshwater lake to a permanent saline lake" (Chapter 25, p. 25-18); salinity conditions that support Black Bream recruitment "are maintained" (p. 25-20)	The 2020 flow study sets estuary salinities of 15 to 20 ppt from September to December for estuarine residents to breed (F22). The limit the EES applies sets a median of 17 to 21 g/L at mid-depth, with the salt wedge in the mid-lower estuary, during October to December spawning; no salinity modelling is set against it, and Technical Report D tests the salt wedge only at the wetland inlets (Table 84, p. 201)
3. Fish passage	For the connected option, the deterrents' "effectiveness, particularly at night, is limited", so a drop structure is added (Chapter 25, p. 25-32); a failed inflow structure would bring "Temporary cessation of flow and hence fish passage through the Morwell River" (Chapter 11, p. 11-34)	Measure ECMM14 avoids "juvenile migration in summer", but the EES's own life history puts the juveniles' return in spring (p. 25-32)
4. Submerged vegetation	The seagrass limit is dismissed because "The project will not impact marine environments" (Chapter 25, p. 25-17)	Submerged vegetation is tested only in the Tyers and at Thoms Bridge, not in the estuary (Chapter 11, Table 11-2)
5. Spawning and nursery habitats	Recognises the Grayling's autumn spawning cue (Chapter 25, p. 25-27) and that Bream and Perch	No flow test is timed to the spawning seasons: February to May for Grayling,

[494] Ibid., p. 7.
[495] Ibid., p. 13.
[496] Commonwealth of Australia 2022, *National Recovery Plan for the Australasian Bittern (Botaurus poiciloptilus)*, p. 15.
[497] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-8.
[498] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-3.
[499] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, pp. 11-21, 11-23.

Pathway	The EES's conclusion	The gap
	depend on salinity and flows (Chapter 11, p. 11-23)	September to December for Bream and the other estuarine residents (F1, F22)
6. Sediment and water quality	The connected option may "reduce sediment transport through the diversion, potentially leading to aggradation" (Chapter 11, p. 11-33); a structure failure is rated minor because of "available habitat in the wider Latrobe catchment" (p. 11-34)	Discounting harm because habitat exists elsewhere in the catchment is the opposite of a cumulative assessment
Cumulative	"the proposed water use will not result in cumulative impacts on MNES" (Chapter 11, p. 11-46)	Rests on a baseline of continuing use that includes the Energy Brix Power Station, "which closed in 2014" (p. 11-45); see [71] to [75]

117. Each part of the flow regime does a different job, and the EES tests most of them only in the Tyers. The 2020 flow study applies the State's FLOWS method, "the adopted approach for the determination of environmental water requirements for waterways and estuaries across Victoria", and sets recommendations for six flow components, each with "a known or assumed important environmental function".[500] The method selects its assets for, among other things, their conservation status, their occurrence "within significant sites (Ramsar)" and being "responsive to flow events"; its checklist includes "all fish", "wetlands of significance (e.g. Ramsar-listed sites)" and the "longitudinal and lateral linkages/connectivity" between them. Lloyd Environmental sums up what this means for estuarine fish: "Connectivity is key". Freshes "provide trigger for breeding and migration" and provide connectivity, and the fish need the estuary connected to upstream and freshwater areas, the river and estuary to the floodplain, which takes inundation, and the estuary to the sea.[501]

The components work as a chain. A life-cycle model for the Common Jollytail (Common Galaxias), one of the site's estuarine-dependent fish [116], links summer low flows that prevent hypoxia to the condition of adults before spawning; low-flow freshes to the connectivity they need to spawn and to the transport of larvae within and out of the estuary; and bankfull and overbank flows to the wetlands where larvae hatch, rear and feed. Its outcome, "Successful recruitment and species survival", needs every link.[502] What each component does here, and how the EES tests it:[503]

Flow component	What it does for the site's fish and wetlands	How the EES tests it (Chapter 11, Table 11-2)
Summer and autumn baseflow (December to May)	Keeps pools full and mixed "to maintain dissolved-oxygen levels suitable for aquatic animals" (watering plan, p. 32). At the Swing Bridge, the 2020 flow study recommends 1,100 ML/day all year, to "Provide freshwater above halocline for fish" (p. 142)	Triggered only by median-year compliance "of less than 0.001%" in the Tyers over ten years, or below 50 per cent at Thoms Bridge; "None specified" for the estuary
Summer and autumn fresh	Australian Grayling "spawn in response to autumn freshes" (watering plan, p. 46); in the Thomson the same freshes "Trigger downstream migration of adult short- and long-finned eel" (p. 50). At the Swing Bridge, freshes of 2,200 ML/day "provide breeding opportunities for estuary fish" (p. 32)	Five continuous years without one in the Tyers, labelled "(vegetation)", or two at Rosedale; none for the estuary
Winter and spring baseflow (June to November)	Maintains "longitudinal connectivity to allow movement/dispersal of native fish" (watering plan, p. 31). In dry years the State relies on "passing flows	Median-year compliance "of less than 0.001%" in the Tyers, or below

[500] Alluvium 2020, *Latrobe Environmental Water Requirements*, p. ii; Table 4, p. 23.
[501] Lloyd Environmental [date], *[presentation on estuarine fish and environmental flows]*, slides "Asset-Based Approach", "Checklist for environmental assets" and "Summary".
[502] Lloyd Environmental [date], *[presentation on estuarine fish and environmental flows]*, slide "Common Jollytail".
[503] Victorian Environmental Water Holder 2026, *Seasonal Watering Plan 2026-27*, pp. 31-33, 35, 46, 49-50; Alluvium 2020, *Latrobe Environmental Water Requirements*, pp. 142-143; Hale, J. et al. 2020, *Ecological Effects Assessment*, s 2.7; Goode, A. et al. 2026, *Implications of the clean energy transition for waterways*, p. 5; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, Tables 11-2 and 11-3, pp. 11-4, 11-5.

Flow component	What it does for the site's fish and wetlands	How the EES tests it (Chapter 11, Table 11-2)
	and natural inflows from unregulated tributaries" for flow in winter and spring (p. 33)	20 per cent at Thoms Bridge; "None specified" for the estuary
Winter and spring fresh	In the Thomson, spring freshes "Trigger the migration of adult and juvenile native fish (in particular, the upstream migration of Australian grayling and Australian bass from marine/estuarine habitats)" (watering plan, p. 49). At the Swing Bridge they give "Salinities for Black Bream Spawning" and the "Salinity gradient for Grayling" (2020 flow study, p. 143)	Five continuous years without one in the Tyers, though Chapter 11 says the loss means "Reduction in the frequency and strength of migration cues for diadromous fish" (Table 11-3); "None specified" for the Latrobe; for the estuary, eight consecutive years without two
Bankfull	Scours pools and wets "low-level floodplain wetlands that support vegetation, fish and frogs" (Chapter 11, Table 11-3); in the estuary it pushes fresh water through Lake Wellington, "maintaining low salinity conditions in the fringing wetlands" (2020 ecological study, s 2.7)	15 continuous years without one in the Tyers
Overbank	Connects the river to the lower Latrobe wetlands and allows "the complete flushing of Lake Wellington" (2020 ecological study, s 2.7). Regulation and extraction "have reduced the frequency of small and medium-sized floods that naturally wet the lower Latrobe wetlands" (watering plan, p. 35), and channel works have brought "a three-fold decrease in overbank flows" (WGCMA's staff and panel, p. 5)	15 continuous years without one in the Tyers; for the estuary, three consecutive years without one, tested at 5,000 ML/day against a recommendation of 14,000 [60]

A test triggered only when compliance falls below 0.001 per cent can register only the near-total loss of a baseflow. Even on that test, the fast fill under the high climate raises the chance of failing the Tyers summer baseflow criterion from 10 to 35 per cent. Technical Report D accepts that "At the reach scale, the impacts of water use from Moondarra Reservoir on the Tyers River have the potential to be significant", yet reports "no change in risk category is identified for the reach scale assessment, despite a significant change in the probability of the subject criteria being breached".[504]

WGCMA's 2022 review of Lake Wellington sets out the same needs for the lake's fish. Freshwater residents need "Low flows spring to autumn to maintain pools", and "Many require freshes to stimulate reproduction". Migratory species need "Freshes at various times of the year (species dependent) to stimulate upstream and downstream migration", and "Lateral connectivity with wetlands can be important for food sources / juvenile habitat". For both, "The majority of fish species require dissolved oxygen concentrations > 2" mg/L "to survive".[505]

The 2020 flow study gives summer and autumn low flows, in the river and the estuary, the job of keeping "dissolved oxygen levels in pools above thresholds for gill-breathing organisms (fish, macroinvertebrates and zooplankton)", because oxygen stress is likely "particularly during warmer periods when flows are likely to be lowest".[506] Chapter 11 applies the same threshold to a slug of low-oxygen water from the pit lake, finding it "unlikely that DO levels would fall below critical thresholds (<2mg/L)".[507] It does not apply it to the river pools or the estuary when the take lowers baseflows. In the Lakes the threshold is already crossed: bottom water at Lake King North falls below 2 mg/L in 7 to 12 per cent of samples in every decade, and Lake Wellington's bottom water has not been sampled since August 2018.[508]

[504] ENGIE Hazelwood 2026, *Technical Report D*, p. 197.
[505] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 14-15, Table 5. The table prints the unit for dissolved oxygen as "ppt"; mg/L is meant, since water holds of the order of 8 to 10 mg/L of oxygen at saturation.
[506] Alluvium 2020, *Latrobe Environmental Water Requirements*, pp. 98-99, Table 28.
[507] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-37.
[508] Annex 1, section 1.6.

118. The State's 2020 flow study sets a flow criterion for the site's fish in every month. So no seasonal take window can protect them all. Its criteria, with the life-cycle events they serve:[509]

Months	Life-cycle event	What the 2020 flow study sets for it
February to May	Australian Grayling move downstream and spawn in fresh water, "triggered by a high flow event" (Technical Report D, p. 119)	A fresh giving 300 mm over instream benches (F1)
March to July	Tupong, Broad-finned Galaxias and Common Jollytail move downstream to breed	Freshes giving 500 mm over riffles and a salinity gradient in the estuary (F12)
April to July	Australian Bass move downstream to breed in the upper estuary, with success "dependant on flooding"	Freshes giving 500 mm over riffles and passage to the Lakes (F13)
April to August	Eels and other fish move between pools	Freshes giving 500 mm over riffles (F9)
May to July	Grayling larvae drift to the estuary and the sea	Freshes giving 500 mm over riffles (F2)
July to August	Estuary Perch move downstream to breed in the estuary	A low fresh creating a salinity gradient, 500 mm deep (F21)
July to November	Short-finned glass eels return to the estuary, guided by the freshwater flows from rivers	Freshwater flows from the rivers
August to February	Juvenile Tupong and other small migratory fish move upstream	Freshes giving 300 mm over riffles (F11)
September to December	Black Bream, Estuary Perch and the other estuarine residents breed, Bream at the salt wedge	Flows that keep estuary salinity between 15 and 20 ppt (F22)
September to April	Juvenile Australian Bass move upstream	Freshes creating a salinity gradient and depth (F14)
October to January	Juvenile Grayling return upstream from the sea	Freshwater outflows creating a salinity gradient from the Latrobe into Lake Wellington (F3)
October to May	Adult eels migrate downstream to breed at sea	Freshes creating a salinity gradient and passage to Lakes Entrance (F8)
November to May	Elvers migrate upstream	Freshes giving 500 mm over riffles (F7)

Technical Report D accepts that losing the estuary-flushing flows matters most for migratory fish: "The consequences of not recording one of these flows for an entire lifecycle would be at least major as it could lead to their loss from Lake Wellington".[510] For eels the recruitment risk is plain: "In years when river flows are low and estuaries may even be closed, recruitment of glass eels is correspondingly reduced or may be zero".[511] Short-finned Eels live up to 32 years and mature at 14 to 24 years. The adults' downstream migration, from November to April, is "associated with increased discharge", and their flow requirements "really need to consider preservation of adult habitat – rivers and lakes".[512] On the Minister's 10 to 35 years [44], the fill can outlast an eel's whole life in fresh water. Other Gippsland estuaries show the same spread through the year: in the Snow River estuary,

[509] Alluvium 2020, *Latrobe Environmental Water Requirements*, Table 12, pp. 66-68; Table 30, p. 113; Table 32, pp. 133-134; ENGIE Hazelwood 2026, *Technical Report D*, p. 119; Friends of the Gippsland Lakes 2026, *Ramsar significant fish*, notes compiling Victorian Fisheries Authority and Fishes of Australia species profiles.
[510] ENGIE Hazelwood 2026, *Technical Report D*, p. 203.
[511] Friends of the Gippsland Lakes 2026, *Ramsar significant fish*, notes compiling Victorian Fisheries Authority and Fishes of Australia species profiles, Short-finned eel profile.
[512] Lloyd Environmental [date], *[presentation on estuarine fish and environmental flows]*, slides "Short-finned eel".

several of ten diadromous species, among them Grayling, Tupong, both eels, Australian Bass and Estuary Perch, are moving upstream or downstream in every month.[513]

119. The short-finned eel needs the flows at both ends of its life, and the Gunaikurnai name it a species of significance. It shows in one fish what the take reaches, and what the EES leaves out.

- **A species of significance.** The State's 2020 flow study includes Gunaikurnai cultural water objectives, based on the values GLaWAC identified in its Aboriginal Waterways Assessment for the Durt-Yowan. For Bunjil Tambun (fishing) and Woorngan (hunting), "species of significance include Noy yang (eels)", named first, and the objective is to "Maintain abundance of Noy yang (eel) populations". The flows the study sets for it are freshes from October to May for the "Downstream migration of eels (noy yang) to allow for ocean breeding" (F8), and from November to May to let fish "migrate upstream from estuary" (F7).[514] FoGL records what the State's study says, and defers to GLaWAC on what the eel means to the Gunaikurnai [164].
- **The Ramsar site.** The 2024 Addendum names shortfin and longfin eels as fish that "live the majority of their lives in freshwater environments before migrating to the sea to breed and die, with young returning to freshwater". It makes native fish a critical component of the site partly because they support "ecosystem services related to indigenous cultural values, tourism and recreation", and its limit requires every life-history strategy, the diadromous one included, to be represented.[515]
- **A life in the rivers and wetlands.** Short-finned eels spend most of their lives in fresh water, moving upstream "over many years" and maturing as they go.[516] The adults then migrate to the Coral Sea to spawn, a journey satellite tags have followed from western Victoria. The species is listed as near threatened on the IUCN Red List, with "barriers to riverine movement and freshwater habitat loss being key threats".[517] The young return to the estuary as glass eels from July to November [118], so a dry winter and spring can cost a year's recruitment.
- **Food web and livelihoods.** Eels are prey for the bittern: its recovery plan names them among the prey that wetland pollution would reduce [126]. Lake Wellington "has supported commercial fishing of both eel and carp", and this year's watering plan counts "commercial eel and carp fishing" among the socio-economic values of the lower Latrobe wetlands.[518] Eels from Heart Morass already carry elevated PFAS [83].
- **In the EES.** Chapter 11 lists both eels among the fish that "depend on freshwater inflows for survival" [116]. Technical Report D gives their life history, and its risk method carries the flow study's recommendations into its tables with their cultural purpose, "fishing (Bunjil Tambun) / hunting (Woorngan)". But it tests the "Promotion of migration for diadromous fish" only as runs of years without a seasonal fresh, not against the months in which eels migrate [60].[519] The Scoping Requirements asked for the "Potential for adverse effects on Gunaikurnai Country and Aboriginal cultural heritage values associated with water resources (tangible, intangible, known and unknown)".[520] No part of the EES assesses the take against the eel as a cultural value.
- **On site.** On Eel Hole Creek, which bears the fish's name, the Cooling Pond embankment is in Technical Report D's words "an effective barrier to movement by other aquatic fauna, such

[513] Lloyd Environmental [date], *[presentation on estuarine fish and environmental flows]*, slide "Migratory timetable for Snow River estuary".
[514] Alluvium 2020, *Latrobe Environmental Water Requirements*, s 5, pp. 102, 104; Table 29, p. 106; Table 30, p. 113.
[515] Hale, J. 2024, *Addendum to the Ecological Character Description*, pp. 6, 14.
[516] Alluvium 2020, *Latrobe Environmental Water Requirements*, p. 63; Lloyd Environmental [date], *[presentation on estuarine fish and environmental flows]*, slides "Short-finned eel".
[517] Koster, W.M. et al. 2021, 'First tracking of the oceanic spawning migrations of Australasian short-finned eels (Anguilla australis)', *Scientific Reports* 11, 22976, pp. 1-2.
[518] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, p. 21; Victorian Environmental Water Holder 2026, *Seasonal Watering Plan 2026-27*, s 2.2.2, p. 37.
[519] ENGIE Hazelwood 2026, *Technical Report D*, p. 120; Attachment 3.1, pp. 19, 34-36.
[520] Department of Transport and Planning 2023, *Scoping Requirements*, pp. 16, 21.

as platypus, turtles and eels".[521] Reinstating the creek with fish passage would remove it, and FoGL supports that [226]. Every eel that could use the restored creek must first come in from the sea, through the estuary and the lower Latrobe, on the flows the take reduces. Conditions 1 and 4, and the native fish assessment sought at [214], item 6, are how those flows would be protected.

120. The State's flow studies say what the fish need, and the EES tests none of it. For the estuary, the 2020 flow study recommends winter and spring freshes at the Swing Bridge of 3,200 ML/day, for 15 days in an average year, which fully flush the mid estuary and give "Salinities for Black Bream Spawning", and of 4,500 ML/day, for 20 days, which fully flush the lower estuary, displace the salt wedge and give the "Salinity gradient for Grayling".[522] The monitoring behind those recommendations found that "The duration of any flushing type flow event is critical in maintaining flushed or part-flushed conditions", and that when flows fall below the flushing thresholds "the salt wedge can rapidly return".[523] WGCMA's staff and expert panel describe the same mechanism: under prolonged low flows "saline water can extend far upstream", while "in-channel freshes can flush salt from the upper layer of water and an increase in volume or duration can result in a fully flushed water column in the estuary".[524] Fresh water reaches Lake Wellington only when flows exceed 4,100 ML/day for six consecutive days.[525] This year's watering plan targets river freshes of 980 to 1,400 ML/day from November to May, for "longitudinal connectivity (including over benches for Australian grayling)", and estuary freshes of 2,200 ML/day for seven to 10 days, which "provide breeding opportunities for estuary fish".[526] In the Thomson and Macalister, whose migratory fish pass through the Latrobe estuary, it uses spring freshes to "Trigger the migration of adult and juvenile native fish" and autumn freshes to "Cue the downstream migration of Australian grayling towards the estuary for spawning".[527] The State's 2020 ecological study found that freshes "act as triggers for reproductive behaviours (migration, spawning) in many native fish species".[528]

121. Only natural flows can supply the larger freshes, and condition 1 protects them. Held environmental water cannot make them: because of channel capacity constraints, "some of the larger freshes required to meet environmental objectives in reaches 3, 4, 5 and 6 cannot be delivered without inundating private land", and no water for the environment was used in the Latrobe in 2025-26.[529] Those freshes come from natural events and storage spills, which the Moondarra take reduces [220] and flood harvesting would capture [65], [69]. Winter and spring flows also fill the lower Latrobe wetlands: in an average year "Moderate winter/spring flow in the Latrobe River is likely to fill or partially fill the wetlands".[530]

Whether the wetlands can be watered at all depends on the estuary. Sale Common's inlet gates are closed when the river there is salty, which has "made it increasingly difficult to fill Sale Common with environmental water in recent dry years with unsuccessful attempts in 2017/18, 2018/19 and 2019/20", and its watering recommendations can be met only "if the environmental water requirements of the Latrobe Estuary are delivered in full". Environmental water cannot do the same for the lake: the volume used in 2016-17 was "merely 5% of the water extracted from the system for consumptive use", and "not sufficient to contribute meaningfully to the reduction of salinity in Lake Wellington, itself".[531]

Condition 1's take window, 1 June to 30 November [227], protects the Grayling's autumn spawning, but it is the flow study's winter and spring period, and runs through criteria F2, F3, F7 to F9, F11 to F14, F21 and F22, and the glass eels' return. No season protects them all, so condition 1 also stops

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[521] ENGIE Hazelwood 2026, *Technical Report D*, s 6.4.4, p. 136.
[522] Alluvium 2020, *Latrobe Environmental Water Requirements*, p. 143.
[523] Alluvium 2020, *Latrobe Environmental Water Requirements*, Appendix F, p. 229, summarising Water Technology 2017.
[524] Goode, A. et al. 2026, *Implications of the clean energy transition for waterways*, p. 5.
[525] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, pp. 11-15, 11-16.
[526] Victorian Environmental Water Holder 2026, *Seasonal Watering Plan 2026-27*, p. 32.
[527] Victorian Environmental Water Holder 2026, *Seasonal Watering Plan 2026-27*, pp. 46, 49, 58.
[528] Hale, J. et al. 2020, *Ecological Effects Assessment*, s 2.7.
[529] Victorian Environmental Water Holder 2026, *Seasonal Watering Plan 2026-27*, pp. 26-27.
[530] Victorian Environmental Water Holder 2026, *Seasonal Watering Plan 2026-27*, Table 2.2.4, p. 43.
[531] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 23, 28, 30.

the take while a winter or spring fresh is running, until the fresh has run its recommended duration. Condition 4's flow triggers and fallback control B12's salinity triggers cover the estuary in those months.

The significance tests

122. Ramsar wetlands (Significant Impact Guidelines 1.1). The EES concedes a measurable change, then judges it not substantial on the wrong measures. The test is a real chance of "A substantial and measurable change in the hydrological regime of the wetland".[532] The Guidelines' example includes changes to the "duration and frequency" of flows. Duration is the quantity the current limits turn on, and the EES never computes it. Chapter 25 finds the flow changes "measurable but not substantial",[533] conceding one of the test's two elements. Its "overbank" result uses 5,000 ML/day,[534] about a third of Alluvium 2020's 14,000 to 17,000 ML/day at Swing Bridge;[535] a flow exceeded on 14 per cent of days is not an overbank flow. Whether the change is substantial must be judged against the site's current character and limits and the State's wetland metrics, none of which the EES used (Table 2).

123. A conclusion that no limit is triggered is not the test. The water quality limb, a substantial change in salinity or pollutants, works the same way as the hydrological one ([106] to [114] and [76] to [85]). "No limits of acceptable change thresholds are triggered"[536] does not answer whether there is a real chance of substantial change. Nor does it displace the direction to assume the worst case where mitigation is uncertain [53]. And Technical Report D's conclusion of no material impact on MNES is conditional on measures the proponent does not control [149] to [152].

124. The IESC. FoGL does not claim the IESC's support on its Ramsar points. The IESC found the Ramsar risk assessment adequate,[537] within a remit centred on water resources. It did not purport to assess the revised limits, the listed shorebirds or the bittern's critical habitat. The one Ramsar issue it did single out, saline intrusion, the proponent answered in a sentence [109]. The risk assessment it found adequate rates downstream risk low because of the distance, about 70 km, and "the relatively small contributions of the Morwell and Tyers rivers on a catchment scale".[538] That is the catchment-scale reasoning the IESC rejected for the Tyers itself, where it warned that it "conveys the impression that even severe ecological impacts are acceptable if they are restricted to individual reaches or waterways" [61]. The Latrobe supplies about 57 per cent of Lake Wellington's fresh water [2], and the EES's own model puts the project's effect on the lake's salinity at 0.67 ppt on average [107].

125. The Commonwealth should state which description it will assess the action against. Its formal record still lists the 1999 Information Sheet and the 2010 Ecological Character Description. If it is the 2010 Ecological Character Description, FoGL requests that the action also be assessed against the Addendum.

The decision must also be consistent with the Ramsar Convention. In deciding whether to approve the action for the purposes of ss 16 and 17B, and what conditions to attach, the Minister must not act inconsistently with Australia's obligations under the Convention (s 138). Those obligations include promoting the conservation of listed wetlands (Article 3.1) and being informed at the earliest possible time of human-induced change in a listed wetland's ecological character (Article 3.2; [104]). Article 3.2 requires each party to "arrange to be informed at the earliest possible time" if a listed site's ecological character "has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference", and provides that "Information on such

[532] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-2.
[533] Ibid., Chapter 25, p. 25-13.
[534] ENGIE Hazelwood 2026, *Technical Report D*, Table 73, p. 185.
[535] Alluvium 2020, *Latrobe Environmental Water Requirements*, pp. 142-143.
[536] ENGIE Hazelwood 2026, *Technical Report D*, p. 285.
[537] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 26.
[538] Ibid.

changes shall be passed without delay" to the Convention's Secretariat,[539] which forwards them to all parties for discussion at the next Conference.[540]

The Commonwealth's guidance defines change in ecological character as "the human-induced adverse alteration of any ecosystem component, process, and/or ecosystem benefit/service", treats change as likely where there is a "reasonable likelihood, under current conditions or certain planned activities", and, where a notified matter is subject to assessment under the EPBC Act, reports to the Secretariat on "the status of any assessment under the EPBC Act".[541] A site where change has occurred, is occurring or is likely may be added, in consultation with the party, to the Convention's record of such sites, the Montreux Record.[542] Water extraction is a human interference, and WGCMA's 2022 review attributes the change already seen at Lake Wellington partly to it [104]. A decision to approve this take is one the Commonwealth may have to account for to the Convention. The 2025 amendment that adds the Australian Ramsar management principles and the site's management plan to s 138 does not apply to a 2022 referral (Reform Act, Sch 1, item 690(1)(g)), so FoGL relies on the 2024 Management Plan as evidence [106], not as a binding instrument.

Approving a take that permanently reduces the site's freshwater inflows [107], without computing drying duration [99] or securing the watering infrastructure [101], would be difficult to reconcile with those obligations. Conditions 1, 4 and 6 are how an approval could be made consistent with them.

D3 Listed threatened species and communities (ss 18, 18A)

The Australasian Bittern, downstream and on site

126. Australasian bittern. The EES accepts the lower Latrobe wetlands are the bittern's critical habitat, then does not assess them. Technical Report H1 states that the wetlands "unquestionably meet the definition of critical habitat", and Chapter 25 agrees.[543] The bittern was confirmed in the Ramsar site in 2020, 2021 and 2022.[544] BirdLife's survey recorded it at Sale Common West in 2020, and notes its very low detectability, so few records are not evidence of absence.[545] The Commonwealth's recovery plan makes the same point: important habitat "might not have birds in any given year".[546]

WGCMA's 2022 review names the bittern and the Growling Grass Frog as species "regularly supported by the site and critical to ecological character" at Sale Common, and says that maintaining Sale Common as a freshwater system "must be considered the highest priority".[547] Chapter 25 then disposes of the wetlands in one sentence, "There is no increase in ecological risk... due to the project water use",[548] and goes on to assess habitat on the mine site. Yet the Commonwealth's advice names water diversion as the main cause of the bittern's decline: "The major factor in the decline of the Australasian Bittern population in Australia is the reduction in extent of available habitat due to the long-term diversion of water away from wetlands and floodplains". It adds that elevated salinity

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[539] *Convention on Wetlands of International Importance especially as Waterfowl Habitat* (Ramsar, 1971), Article 3.2.
[540] Ibid., Article 8.2(d).
[541] Department of the Environment, Water, Heritage and the Arts 2009, *National Guidance on Notifying Change in Ecological Character of Australian Ramsar Wetlands (Article 3.2)*, pp. 4, 6, 12.
[542] Ramsar Convention, Recommendation 4.8, *Change in ecological character of Ramsar sites* (Montreux, 1990).
[543] ENGIE Hazelwood 2026, *Technical Report H1: Ecology*, p. 159; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-30.
[544] ENGIE Hazelwood 2026, *Technical Report H1*, p. 159; Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 4.
[545] Healey, C. 2026, *Wetland Birds in the Gippsland Lakes*, pp. 30, 83, 117.
[546] Commonwealth of Australia 2022, *National Recovery Plan for the Australasian Bittern (Botaurus poiciloptilus)*, p. 10.
[547] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 26, 57.
[548] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-30.

"may directly impact on Australasian Bittern survival and breeding success", and that "all populations should be considered important".[549]

The 2022 recovery plan names the same main threat, "the diversion of water away from wetlands (primarily for irrigation as well as groundwater extraction)", and adds: "Across the range of the species, proposals to expand or create new irrigation schemes (dams) need to be mindful of the potential impacts to Australasian Bittern and its habitats, particularly during extended drought conditions". The take is not for irrigation, but it is a new draw on a dam, and it has no drought trigger: the drought plan is unwritten, and the fill takes water in dry years as well as wet ([53], [56]). The plan also records how far a modest loss of flow can reach: the Macquarie Marshes Ramsar wetland "has reduced in size by 40–50 per cent as a result of a 21 per cent decline in the flow of water to the wetland".[550]

The same omission was made in 2022. The State advised the Commonwealth that a significant impact was "highly unlikely", and the delegate recorded that this advice "did not take into account downstream impacts".[551] The State's advice concerned "the broader Morwell area".[552] The Commonwealth's wetlands advice found that reduced flows and water quality "will negatively impact threatened frog species, threatened bird species such as the Australian Bittern and Painted Snipe".[553]

The recovery plan also sets out the water quality pathway. "The regulation of river flows has the potential to reduce water quality by excessively raising or lowering water temperatures, reducing dissolved oxygen levels and increasing nutrient and contaminant loads", changes that "can result from altered flows caused by water diversion, impoundment or sustained dry periods reducing run-off". Run-off can also bring "phytoplankton blooms, reduced oxygen levels and increased salinity", and pollution "is likely to cause a decline in many of the prey species of the Australasian Bittern, such as eels, freshwater crayfish and frogs".[554] The project acts on both. It lowers the flows that keep oxygen in the river pools and the estuary [117]. And the EES's own predictions for the connected pit lake's discharge cover every effect on the plan's list: "warm, oxygen depleted water" when the lake turns over, which the EES expects mixing to dilute;[555] nitrogen and phosphorus from a lake likely to become eutrophic [79]; dissolved salts at more than four times the river's objective [80]; and copper settling in Heart Morass, where Chapter 25 finds it could threaten amphibians, fish and birds [83]. None of this is assessed for the bittern [128].

127. The Minister must not approve inconsistently with the bittern's recovery plan, which rates this threat Very High. In deciding whether to approve the action for the purposes of s 18, and what conditions to attach, the Minister "must not act inconsistently with" a recovery plan, and must have regard to approved conservation advice where a significant impact is likely.[556] The 2025 amendments to s 139 do not apply to a 2022 referral.[557] The bittern's recovery plan was made under s 269A(3), jointly with Victoria and three other States, and took effect in February 2023;[558] a recovery plan taking effect is not among the listing events s 158A sets aside [15].

The plan's risk matrix rates "Reduced wetland availability due to changed water regimes" and "Loss of wetlands" as almost certain, with major consequences, defined as "population decreases". On its

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[549] Threatened Species Scientific Committee 2019, *Conservation Advice: Botaurus poiciloptilus, Australasian Bittern*, pp. 4-5.
[550] Commonwealth of Australia 2022, *National Recovery Plan for the Australasian Bittern (Botaurus poiciloptilus)*, pp. 11-12.
[551] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 32(b).
[552] Department of Environment, Land, Water and Planning (Gippsland) 2022, *Comments on referral 2022/09239*.
[553] Commonwealth Environmental Water Office 2022, *Wetlands advice on referral 2022/09239*.
[554] Commonwealth of Australia 2022, *National Recovery Plan for the Australasian Bittern (Botaurus poiciloptilus)*, p. 15.
[555] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-37.
[556] *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 139(1)(b), (2).
[557] *Environment Protection Reform Act 2025* (Cth), Sch 1, item 690(1)(g).
[558] *Environment Protection and Biodiversity Conservation (Recovery Plan—Australasian Bittern (Botaurus poiciloptilus)) Instrument 2023* (Cth), F2023L00138, and explanatory statement.

own matrix that is Very High risk: "immediate mitigation action required". It rates "Reduced water quality" almost certain with moderate consequences, "population recovery stalls or reduces": also Very High.[559] The plan adds that, given their "restricted distributions and small population sizes", "all subpopulations of Australasian Bittern covered by this plan require strong protective measures"; the Gippsland birds belong to the eastern subpopulation.[560]

The plan's objective is that critical habitat "is protected and managed to meet the ecological requirements of the species", and its first action, at Priority 1, is that managers in catchments with known bittern habitat "have considered their requirements in environmental flow assessments".[561] The EES's flow assessment does not consider them: Technical Report D assesses limits, not species [128]. FoGL submits that approving the take without assessing the bittern's water requirements, and without a drought trigger, would be difficult to reconcile with the plan. Conditions 1 and 4, which pause the take in drought and fix triggers for the wetlands' watering and drying (Part H), are how an approval could be made consistent with it.

128. The omission is structural. Technical Report H1's study area excludes the downstream environments and the Ramsar site, which is "exclusively addressed in Technical Report D".[562] Technical Report D assesses hydrology, water quality and limits, not species. No report assesses the project's effect on the bittern or the listed shorebirds at the Ramsar site. The State does not draw that line. Its guidance on water for mine rehabilitation describes the Ramsar wetlands of the Gippsland Lakes, including the lower Latrobe wetlands, as "habitat to threatened species, such as the Australasian Bittern and Australian Grayling".[563]

The result is circular. Technical Report H1 discounts the loss of on-site habitat because "Numerous larger areas of more extensive and suitable habitat occur" in the Ramsar site and the lower Latrobe wetlands, and Chapter 15 does the same.[564] Those are the wetlands the take affects, and no report assesses their species:

- Chapter 15 points to Chapter 11, which lists the bittern and the migratory shorebirds among the wetlands' values and assesses neither.
- Technical Report H4 (ecology appendices) lists the curlew sandpiper and the sharp-tailed sandpiper as Commonwealth species of interest "outside the scope of this technical report".[565]

129. The site manager's risk assessment contradicts the EES's one-sentence dismissal. The Management Plan rates altered water regimes from water resource use, including mines, a High risk:

- to native vegetation and threatened frogs in Sale Common and Macleod Morass;
- to vegetation, waterbird feeding (citing the bittern) and frogs in Dowd and Heart Morass.

Increased salinity is rated High, having caused "significant ecological shifts". Of mine rehabilitation, the plan records that its effect on water quantity and regimes "is not known". FoGL notes that the plan rates water use's impact "significantly less than that of climate change";[566] [55] explains why the two compound.

130. The listed species at the Ramsar site. The EES assesses none of the species the Commonwealth found at risk there. The Commonwealth found a real chance of significant impact

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[559] Commonwealth of Australia 2022, *National Recovery Plan for the Australasian Bittern (Botaurus poiciloptilus)*, pp. 16-17, Tables 2 and 3.
[560] Commonwealth of Australia 2022, *National Recovery Plan for the Australasian Bittern (Botaurus poiciloptilus)*, p. 18.
[561] Commonwealth of Australia 2022, *National Recovery Plan for the Australasian Bittern (Botaurus poiciloptilus)*, pp. 19, 21, Action 1a.
[562] ENGIE Hazelwood 2026, *Technical Report H1*, pp. 25, 94.
[563] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, p. 16.
[564] ENGIE Hazelwood 2026, *Technical Report H1*, p. 159; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-28.
[565] ENGIE Hazelwood 2026, *Technical Report H4: Ecology (appendices)*, Appendix E.
[566] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, pp. 140, 129, 128, 139.

on each species below at the Ramsar site, which is why ss 18, 18A, 20 and 20A are controlling provisions.

Species	EPBC status	At the site	Commonwealth, 2023	EES treatment
Australasian bittern	Endangered (2011)	2020 to 2022	Real chance of significant impact	Critical habitat acknowledged; downstream effect not assessed [126]
Growling grass frog; green and golden bell frog	Vulnerable (2000)	Bell frog bred in Heart Morass, 2021[567]	Real chance	Not assessed at the site; Heart Morass is the copper receptor [83]
Curlew sandpiper; eastern curlew	Critically Endangered (2015) and migratory	Site is "habitat critical to the survival" of both[568]	As stated	Sandpiper named only in the superseded 2010 limit; neither assessed
Great knot; red knot	Threatened (2016, revised 2024) and migratory	Not stated in the EES	Great knot: real chance; red knot not separately named	Red knot named only in the 2010 limit; neither assessed
Bar-tailed godwit	Threatened (2016, revised 2024) and migratory	67% of years[569]	Not separately named	In Chapter 11's baseline; absent from Chapter 25
Australian painted snipe	Endangered (2013)	Not stated in the EES	Real chance	Not assessed
Sharp-tailed sandpiper; red-necked stint	Migratory; sandpiper threatened (2024)	Sandpiper 87% of years; both "regularly recorded in the lower Latrobe wetlands"[570]	Significant impact likely on migratory habitat	Named only in the 2010 limit
Common greenshank; Latham's snipe	Migratory; threatened (2024)	72% and 67% of years; "regularly recorded"[571]	Real chance	Greenshank absent from Chapter 25; snipe assessed only at the works area [140]
Australian fairy tern; little tern	Fairy tern Vulnerable; little tern migratory	All five years assessed; internationally significant numbers[572]	Real chance	Not assessed at the site

The 2024 Addendum is narrower. It counts four threatened shorebirds as regularly supported by the site, the bar-tailed godwit, common greenshank, Latham's snipe and sharp-tailed sandpiper, each recorded in at least two-thirds of years, and makes their presence a limit. It does not list the curlew sandpiper, eastern curlew or the knots among the threatened species the site regularly supports, and for the painted snipe it has "only a single record of the species from within the site boundary, at Sale Common in 1970".[573] FoGL relies on the Commonwealth's 2023 findings for those species, and on

[567] Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 4.
[568] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 106.
[569] Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 1.
[570] Ibid.; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-25.
[571] Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 1; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-25.
[572] Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 4; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, Table 25-4.
[573] Hale, J. 2024, *Addendum to the Ecological Character Description*, pp. 2-3, 7-8.

the Addendum for the four whose presence the current limits test. For the painted snipe, its case rests on the Commonwealth's finding and the species' recovery plan [131], not on records at the site.

131. Beyond the bittern, six more of these species depend on wetland water regimes, and the plans and advice written for them say so. The EES assesses none of them for the take. What the flows and salinity do to each:[574]

Species	What the flows and salinity do	What the plans and advice say	In the EES
Australian Painted Snipe (Endangered)	Nomadic: breeds in "shallow wetlands with areas of bare wet mud and mixed heights of low vegetation", mostly fresh, and moves to drought refuges. The 2024 Addendum has "only a single record of the species from within the site boundary, at Sale Common in 1970", and does not count it among the species the site regularly supports	The 2022 recovery plan rates "Changes to water regimes" and "Drainage of wetlands" almost certain, with major consequences: Very High risk. Its most critical threat is "the diversion of water for irrigated agriculture"; it names "lack of flushing flows" among the causes of poorer water quality, and asks that drought be managed "so that habitat is always available somewhere in the landscape". The 2013 advice: "Manage any changes to hydrology that may result in changes to water table levels, run-off, salinity, algal blooms, sedimentation or pollution"	Not assessed
Growling Grass Frog, Litoria raniformis (the Commonwealth's "southern bell frog"; Vulnerable)	Needs water through the September to February breeding season, and refuges that hold water in drought. Slightly saline water lowers its disease risk, but it is absent where salinity stays high	The 2024 advice rates "Altered hydrology, including modified flow regimes and groundwater extraction" a Very High risk, records that "water extraction has resulted in declines across Victoria", and says "Critically, water needs to be available over the breeding season (September–February)". The 2012 recovery plan: "The reduction of inflows to wetlands is having a detrimental impact on these habitats", and the species "does not occur in waterbodies where salinity levels exceed 7.0 ms/cm for lengthy periods" (roughly 4 ppt). WGCMA names it "regularly supported" at Sale Common	Copper only. It bred at Clydebank Morass, in the site, in 2022. The 2022 assessment had no Sale Common salinity data after 2017 spot samples; a meter was installed that year [104]
Green and Golden Bell Frog (Vulnerable)	Needs surface water through spring and summer to breed. Salinity is not the pathway for this frog: it tolerates brackish water	WGCMA's 2022 review: "Requires surface water spring to summer for breeding"; 85 per cent survival at 6 ppt, with "Some evidence to suggest low salinity can increase vulnerability to chytrid fungus"	Copper only. It bred in Heart Morass in 2021
Sharp-tailed Sandpiper, Common Greenshank, Latham's Snipe (migratory;	Feed in shallow water and on soft mud at fresh and brackish wetland edges; lose habitat as wetlands dry, or as rushes and reeds close over them	The shorebird guidelines list, among activities "highly likely to have a significant impact", "water pollution and changes to the water regime", "artificial changes to hydrological regimes that affect the productivity of the feeding environment (for	The snipe is assessed only at the works area [141]; the others are not assessed

[574] Commonwealth of Australia 2022, *National Recovery Plan for the Australian Painted Snipe (Rostratula australis)*, pp. 12, 15-17, 20; Department of Sustainability, Environment, Water, Population and Communities 2013, *Approved Conservation Advice for Rostratula australis (Australian painted snipe)*, p. 4; Clemann, N. and Gillespie, G.R. 2012, *National Recovery Plan for the Southern Bell Frog Litoria raniformis*, Department of Sustainability and Environment, Melbourne, pp. 7, 9; Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Litoria raniformis (southern bell frog)*, pp. 9, 12, 17; Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, pp. 15, 26; Commonwealth of Australia 2017, *EPBC Act Policy Statement 3.21: Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species*, p. 17; Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Gallinago hardwickii (Latham's snipe)*, p. 8; Hale, J. 2024, *Addendum to the Ecological Character Description*, pp. 8, 16-18.

Species	What the flows and salinity do	What the plans and advice say	In the EES
threatened since 2024)		example, changes in water depth)" and "exposure of acid sulphate soils". The snipe advice names "the drainage and diversion of water from wetlands"	

Two of these effects are already visible. Acid sulphate soils occur in "the variably saline wetlands fringing Lake Wellington", unlike Sale Common, and drying exposes them.[575] At Sale Common, open water fell from 51 to 9 per cent between 2016 and 2020 as emergent vegetation spread [103], and in 2019 giant rush colonised it when low water and saline intrusion prevented watering [100]. For the snipe, Heart Morass has held more than 18 birds on several occasions, so it is important habitat [140].

Two more recovery plans bind the decision. The painted snipe's, like the bittern's, was made under s 269A(3), jointly with Victoria, and took effect in March 2023.[576] The 2012 national recovery plan for Litoria raniformis, published under its other common name, the Southern Bell Frog, also remains in force: the Commonwealth states that recovery plans "remain in force until and unless the species is removed from the threatened list", and that they are exempt from sunsetting.[577] The Minister must not act inconsistently with either (s 139(1)(b); [127]).

The 2024 conservation advice for the species, to which the Minister must have regard if a significant impact is likely (s 139(2)), adds detail. It too uses the name southern bell frog, noting that the species "is also commonly known as the growling grass frog".[578] Its risk matrix places altered hydrology among the Very High risks to the species, almost certain with major consequences, alongside chytrid disease and habitat loss; drought is Very High too. The species "has a narrow window of opportunity for breeding and any stochastic event (such [as] drought) that prevents breeding for more than a year is likely to have a significant detrimental effect". The first priority it lists is to "identify occupied sites that act as refuge habitat by holding water during drought, and ensure that these are retained and protected", and it asks that breeding and refuge habitat be supported in dry periods "through the appropriate and effective releases of environmental water". It names Gippsland near Sale among the species' temperate southern sites.

The Commonwealth's significant impact guidelines for the species, which the advice cites, say that "any viable population is considered to be an important population": for a vulnerable species, that is the population on which significance turns [16]. Their thresholds for a significant impact on such a population include "Alteration to wetland hydrology, diversity and structure (for example any changes to timing, duration or frequency of flood events) that leads to a decrease in habitat quality", and the "alteration of connectivity during flood events". They warn that habitat and populations "may, and usually will, extend beyond the site boundaries", list "Maintain existing hydrological regimes" among the ways to avoid an impact, and, where surveys have not been done as they recommend, say that "failure to detect the growling grass frog should not be considered indicative of its absence".[579] On salinity the advice is more nuanced than the older sources. A "low-moderate saline condition" lowers the risk from chytrid, but occupancy during drought was associated with "low salinity and a high proportion of aquatic vegetation", and the 2012 plan records the species absent where salinity stays above 7.0 mS/cm. For this frog the pathway is the water regime first, and salinity only at the upper end.

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[575] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, report to the West Gippsland CMA, p. 25.
[576] *Environment Protection and Biodiversity Conservation (Recovery Plan—Australian Painted Snipe (Rostratula australis)) Instrument 2023* (Cth), F2023L00199, explanatory statement, registered 7 March 2023.
[577] Department of Climate Change, Energy, the Environment and Water, *Recovery plans made or adopted*, web page, last updated 16 September 2025, citing s 11, item 1, of the *Legislation (Exemptions and Other Matters) Regulation 2015* (Cth).
[578] Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Litoria raniformis (southern bell frog)*, in effect from 20 August 2024, pp. 2-3, 8-10, 12, 14-15, 17-18.
[579] Department of the Environment, Water, Heritage and the Arts 2009, *EPBC Act Policy Statement 3.14: Significant impact guidelines for the vulnerable growling grass frog (Litoria raniformis)*, pp. 4, 7, 9-10, 12.

132. On site, the EES applies a narrower test of critical habitat than the one it quotes. Chapter 25 quotes the conservation advice: habitat critical to survival is "all natural habitat (including constructed wetlands with suitable habitat)" where the species is known or likely to occur. It then applies the recovery plan's "any natural wetland habitat", and concludes that the storages "may meet the literal definition of critical habitat" but are not critical.[580] The recovery plan's wording is not a closed definition: "As a guide, habitat critical to the survival of the Australasian Bittern can be considered to include" any natural wetland where the species is known or likely to occur.[581] The bittern was seen in the works area near the outflow channel, but no targeted survey is listed, and the conclusion that birds visit the storages only "on occasion" rests on no count, breeding data or seasonal record.[582]

133. The EES relies on alternative habitat the project degrades. It treats the Morwell River wetlands and the Ramsar wetlands as better habitat, and says the lower Latrobe wetlands "would meet the definition of critical habitat".[583] But the project lowers the Morwell River (Southern) Wetland's water level by 22 mm on average and by up to 120 mm, and the contingency for that wetland is "physical control of excessive macrophyte colonisation",[584] the same growth Chapter 25 says "would likely benefit Australasian Bittern".[585] The Southern Wetland, which the Scoping Requirements named, lies outside the ecology study area.[586] The downstream wetlands are dealt with at [126] to [129].

The Grayling and the Dwarf Galaxias

134. The lower Latrobe Grayling is an important population, and the flow effects on it are not assessed. For a vulnerable species the test turns on an important population, which "may include populations identified as such in recovery plans" [16]. The Grayling's recovery plan lists "Thomson River (incl. lower Latrobe River)" among the important rivers for the species, and its Action 2.2 is to identify rivers where "flow regulation or water abstraction potentially impacts on important populations".[587] The Commonwealth's advice explains why flows decide its fate:

- Grayling "will not release eggs if no, or less than expected, river flow occurs during their expected spawning season", and "Flow event duration is critical": long enough for larvae to drift to the sea and to cue juveniles back into fresh water.[588]
- It lives up to five years, but "many rarely live past an age of three years", and its generation length is about 2.5 years. Most individuals spawn only once, "so populations are especially vulnerable to any disruption of spawning or recruitment".[589]
- The first successful breeding recorded in the Latrobe followed an environmental water release in 2015.[590]
- Modelling cited in the advice found that by 2050 or 2070 "there will no longer be any sustaining populations in the Latrobe River due to reduced water flows" and warmer water. Since 1970 most low rainfall over south-eastern Australia has fallen in autumn, "coinciding with the spawning period of Australian Grayling".[591]

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[580] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, pp. 25-29, 25-30, 25-62.
[581] Commonwealth of Australia 2022, *National Recovery Plan for the Australasian Bittern (Botaurus poiciloptilus)*, p. 10.
[582] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, pp. 15-5, 15-28.
[583] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-30.
[584] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, pp. 11-40, 11-41 (CRMC05).
[585] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-30.
[586] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-4; Department of Transport and Planning 2023, *Scoping Requirements*, s 4.3, p. 20.
[587] Backhouse, G., Jackson, J. and O'Connor, J. 2008, *National Recovery Plan for the Australian Grayling Prototroctes maraena*, pp. 4, 10.
[588] Threatened Species Scientific Committee 2021, *Conservation Advice: Prototroctes maraena, Australian Grayling*, pp. 5-6.
[589] Ibid., pp. 3, 12; Backhouse, G., Jackson, J. and O'Connor, J. 2008, *National Recovery Plan for the Australian Grayling Prototroctes maraena*, p. 6.
[590] Threatened Species Scientific Committee 2021, *Conservation Advice: Prototroctes maraena, Australian Grayling*, p. 13.
[591] Ibid., p. 8.

The EES assesses the Grayling only for fish entering the pit lake and for Morwell River water quality.[592] A project that makes higher flows at Thoms Bridge less frequent [60] has a real chance to "disrupt the breeding cycle of an important population".[593] The EES does not ask the question.

135. The Dwarf Galaxias depends on the flood connections the EES says may be restricted. The EES concludes that reduced flooding upstream of the inflow structure "might restrict movement between wetlands", but is "unlikely to lead to a long-term population decline".[594] The Commonwealth's advice makes that movement the issue: connecting seasonal wetlands to creeks and rivers "during flooding events is critical", and habitat critical to survival includes "Hydrologically connected waterways ... within 25 km of known sites, which are suitable for natural migration during flooding events".[595] The species is annual, so "any stochastic event (i.e., drought) that prevents breeding for more than a year is likely to have a significant detrimental impact".[596] It has been recorded in the Morwell River Wetlands.[597] It is assessed here as Vulnerable, its status at the decision [15]. The advice is a further reason to refuse the connection (condition 2).

Frogs, reptiles, plants and the Strzelecki Gum

136. Threatened frogs, reptiles and freshwater plants are assessed only for copper, or not at all.

- **Frogs at the Ramsar site.** The Growling Grass Frog and the Green and Golden Bell Frog are assessed only for copper,[598] though the Ramsar Site Management Plan rates increased salinity a High risk to threatened frogs [129]. What the flows and salinity do to each is set out at [131].
- **Freshwater plants.** Three threatened freshwater wetland plants of central Gippsland, River Swamp Wallaby-grass, Dwarf Kerrawang and Swamp Everlasting, have advice or a recovery plan naming changed hydrology or drying as a threat, and the last two are criterion 2 species for the site (Table 8).[599]
- **Strzelecki Gum.** The Strzelecki Gums retained at the Yinnar Road culvert sit beside the Cooling Pond, where groundwater is predicted to fall by up to 8 m once the Pond is drained. The groundwater-dependent ecosystem assessment covers two polygons only, and whether those trees are in the drawdown is not addressed.[600]
- **Swamp Skink.** The same Swamp Scrub edge is the one place the EES accepts that Swamp Skink habitat may be affected. The skink was recorded near the Morwell River bridge, and in 2021 the proponent's ecologists thought it "highly likely" to use the densely vegetated watercourses in the Project Area. The EES rates it unlikely in the works area, on surveys designed for the Glossy Grass Skink, and calls the habitat "suboptimal". The Commonwealth's consultation document records the caution "against assuming that swamp skinks are not present in marginal habitat", and the species' management guidelines say that "Hydrological regimes within and around habitat occupied by Swamp Skinks should be maintained". The drawdown at that edge is not assessed for it.[601]

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[592] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, pp. 25-31 to 25-32.
[593] Department of the Environment 2013, *Significant Impact Guidelines 1.1*, p. 10.
[594] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-33.
[595] Department of Climate Change, Energy, the Environment and Water 2023, *Conservation Advice for Galaxiella pusilla (dwarf galaxias)*, p. 5.
[596] Ibid., p. 7.
[597] AECOM 2021, *Preliminary Ecology Appraisal Report*, Attachment 4 to Referral 2021-R06, p. 13.
[598] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, pp. 25-15 to 25-17.
[599] Department of the Environment, Water, Heritage and the Arts 2008, *Approved Conservation Advice for Amphibromus fluitans (River Swamp Wallaby-grass)*, p. 1; Carter, O. and Walsh, N. 2010, *National Recovery Plan for the Dwarf Kerrawang Rulingia prostrata*, p. 5; Department of Agriculture, Water and the Environment 2021, *Conservation Advice for Xerochrysum palustre (swamp everlasting)*, p. 9; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-19.
[600] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, Table 25-8; Chapter 15, p. 15-26.
[601] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, pp. 15-19, 15-23; AECOM 2021, *Preliminary Ecology Appraisal Report*, Attachment 4 to Referral 2021-R06, p. 23; Threatened Species Scientific Committee 2021, *Consultation on Species Listing Eligibility and Conservation Actions: Lissolepis*

- **Martin's Toadlet.** Endangered since November 2023, it is not mentioned in the EES, though its range "includes sites within the Ramsar listed Gippsland Lakes", with a population at Dutson Downs. It breeds in "moderately sized permanent or semipermanent swamps and ponds surrounded by woodland or coastal scrub"; if their hydrology were to change, "extirpation is possible", and the advice asks for "preventing or minimising water diversion and extraction".[602] Its listing does not bind this decision [15], but it is part of the Ramsar site's native fauna, which the Ramsar test covers whether or not a species is listed [115].
- **Giant Burrowing Frog.** By contrast, the EES names it as a potential receptor at Heart Morass, Dowd Morass and Lake Wellington, though the State's action statement records that "All Victorian records of the species have been from eucalypt forest of various types" and that it "appears to be absent from cleared farmland".[603]

Surveys, mapping and cumulative effects

137. Survey effort is thin for the wetland birds that carry the case, and habitat is not mapped by species.

- **Surveys.** The Scoping Requirements asked for "appropriate seasonal or targeted surveys ... in line with Commonwealth and state survey guidelines, conservation advice and threatened species recovery plans".[604] No targeted survey is listed for the bittern; more than 18 Latham's Snipe are assumed rather than counted; and Lewin's Rail and the Australian Little Bittern "are assumed to be present in the works area due to their cryptic nature, rather than being the subject of targeted surveys".[605] The referral-stage appraisal had recommended targeted Lewin's Rail surveys "to confirm presence/absence and to map the extent of habitat".[606] Surveys of this kind need not be costly. For the bittern, "Programmable audio recorders are now increasingly used", and "Detection of these booms can serve as a proxy for observations of breeding".[607] For frogs, the Commonwealth's survey guidelines note that automated call recording "allows simultaneous sampling of multiple sites and reduces the need for personnel in the field"; the Growling Grass Frog calls from August to February.[608] Recorders left at the lower Latrobe wetlands would also measure what two of the current limits test, the bittern's annual presence and threatened frog breeding (Table 4; condition 6).
- **Downstream.** The ecology study area "does not include the downstream environments of Morwell River, Latrobe River or the Gippsland Lakes Ramsar site", and the Ramsar baseline is "a desktop review".[609]
- **The extent of loss.** Table 15-7's rows sum to 26.231 ha, not the stated 25.779 ha; the difference, about 0.45 ha, is in Tall Marsh, for which Table 15-4 gives 21.647 ha. A 1.64 ha revegetated island "has been included in native vegetation loss and offset calculations" but appears in neither table.[610] The Cooling Pond's Tall Marsh is excluded under the regrowth exemption, a permit rule that does not reduce the habitat the EPBC and FFG tests count; it is

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coventryi (swamp skink), p. 13; Robertson, P. and Clemann, N. 2015, *Guidelines for management activities in Swamp Skink habitat on the Mornington Peninsula*, Guiding principles.

[602] Department of Climate Change, Energy, the Environment and Water 2023, *Conservation Advice for Uperoleia martini (Martin's toadlet)*, pp. 2, 4, 6, 10.

[603] Department of Sustainability and Environment 2003, *Action Statement No. 61: Giant Burrowing Frog Heleioporus australiacus* (first published 1994), p. 1; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-15.

[604] Department of Transport and Planning 2023, *Scoping Requirements*, s 4.3, p. 20.

[605] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, pp. 15-2, 15-5; Chapter 25, p. 25-34.

[606] AECOM 2021, *Preliminary Ecology Appraisal Report*, Attachment 4 to Referral 2021-R06, pp. 33, 37.

[607] Clarke-Wood, B., Sheahan, J. and Jones, H. 2025, 'Seasonal patterns in male Australasian Bittern Botaurus poiciloptilus calling at Bool Lagoon Game Reserve and Hacks Lagoon Conservation Park, South Australia', *Australian Field Ornithology* 42, pp. 180-186.

[608] Commonwealth of Australia 2010, *Survey guidelines for Australia's threatened frogs*, pp. 13 (Table 3), 23.

[609] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-4; Chapter 25, p. 25-10.

[610] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, Tables 15-4 and 15-7, pp. 15-13, 15-26.

habitat for the bittern, Latham's Snipe, Lewin's Rail and the Little Bittern.[611] The community was told "approximately 16 – 17 ha" (Table 7).

- **Habitat by species.** Fauna habitat is described species by species but not tabulated: about 16 ha of Tall Marsh removed permanently, about 15 ha and 4 ha of grassy snipe habitat, about 6 ha at the Works Effluent Pond temporarily, and 7.5 ha more for the connected option, with no area for the Cooling Pond.[612]

138. There is no cumulative assessment for the bittern. The ecology assessment screened 12 projects within 50 km and left out Loy Yang and Yallourn because "no publicly available impact assessment on ecological values could be identified"; most rows say the cumulative effect "cannot be quantified".[613] There is no cumulative row for the bittern, the White-throated Needletail, the Grayling, the Dwarf Galaxias or the Strzelecki Gum. For the Gang-gang Cockatoo and Latham's Snipe, Chapter 25 says it is "not possible to determine whether a significant impact … is likely".[614] The guidelines ask for the total impact over the entire area affected and over time [16], and a significance that cannot be determined is not a conclusion of no significant impact. The omission matters most for the bittern, whose critical habitat downstream depends on the three mines' combined take [71] to [75].

Victorian context: the FFG-listed species

139. Four FFG-listed species lose local populations, and nothing compensates for them. The EES concedes that the local populations of Lewin's Rail, the Australian Little Bittern, the Glossy Grass Skink and Flinders Pygmy Perch may be significantly impacted.[615] They are listed under the Flora and Fauna Guarantee Act 1988, the Glossy Grass Skink as Endangered since June 2021. It was listed as Vulnerable under the EPBC Act on 20 February 2026, after the decision [15], so none is an MNES for this decision, and they are flagged here as Victorian context [18]. The biodiversity evaluation objective covers them, and nothing in the EES compensates for their loss ([148]; Part H, V2 and V3).

D4 Listed migratory species (ss 20, 20A)

140. The one shorebird the EES assesses, it assesses in the wrong place. Chapter 25 assesses Latham's snipe as the only migratory species with potential for significant impact, but at the works area, where two birds were seen "along the Outer Drain", not at the Ramsar site.[616] The Management Plan lists the godwit and greenshank as Endangered under Criterion 2, and targets the annual presence of all four listed shorebirds.[617] BirdLife's surveys recorded Latham's snipe at both Heart Morass survey points, including one inside the Ramsar boundary. They also recorded the godwit and sharp-tailed sandpiper at Heart Morass West, just outside it.[618] Since 2018 the Latham's Snipe Project has recorded typically 100 to 200 snipe across about eight Gippsland Lakes sites, and Heart Morass is one of three that "have exceeded the criteria for national importance" under the EPBC Act, 18 snipe, "on several occasions".[619] On the Commonwealth's advice, that makes it habitat critical to the survival of the species, downstream of the take [141]. Heart Morass is the copper receptor [83].

141. On site, the EES assumes important habitat for Latham's Snipe, then removes most of it. Chapter 25 assumes that more than 18 birds use the works area, the threshold the Commonwealth uses for nationally important habitat, so the habitat is important. Most of it goes: about 16 ha of Tall Marsh permanently, about 19 ha of grassy areas beside the storages that the EES calls "Occasionally used", the Works Effluent Pond, the Cooling Pond and 7.5 ha for the

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[611] Ibid., p. 15-24 and Table 15-5.
[612] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, pp. 25-29, 25-34.
[613] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-34 and Table 15-10.
[614] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, pp. 25-60 to 25-61.
[615] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, pp. 15-2, 15-45.
[616] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-34.
[617] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, pp. 25, 57.
[618] Healey, C. 2026, *Wetland Birds in the Gippsland Lakes*, pp. 16, 85.
[619] Hansen, B.D., Healey, C., Sullivan, D. and Weller, D.R. 2024, 'Waterbird and migratory shorebird monitoring in the Gippsland Lakes', *Proceedings of the Royal Society of Victoria* 136, RS23030, p. 7.

connected option. The conclusion that this is not a substantial modification rests on "similar habitat available in the surrounding landscape", which is not mapped.[620]

- **The habitat the EES calls occasional is the kind the snipe relies on.** The 2024 habitat guidelines describe daytime roosts as "thick but 'gappy' cover of low-moderate height vegetation (typically 20-60 cm)", tussocks with gaps over "shallow (usually less than 10 cm) surface water or muddy sediments", and night-time feeding sites as "open muddy wetlands". Reeds and taller wetland vegetation serve as "retreat" habitat, and reed encroachment is a threat, through "loss of roosting areas or muddy substrates".[621] Tall Marsh is reedbed. On that description, the grassy margins of the storages and the shallow, muddy edges of the ponds to be drained are more likely to be the birds' core habitat than the reeds, and the EES itself places their foraging "in damp grassy areas along the Outer Drain", where the two birds were seen.[622] The Commonwealth's advice is broader, noting that vegetation structure "does not necessarily determine the suitability of habitat", but it too describes "open, freshwater wetlands with low, dense vegetation".[623] Treating the grassland as occasional understates the loss.
- **The proportion argument.** The EES argues that 18 birds are "<0.1% of the East Asian – Australasian Flyway (EAAF) population and 1.6% of the Australian population", so no ecologically significant proportion is affected, while conceding that the Australian estimate "is too low and not considered to be representative of the true population size".[624] There is no Australian estimate to take a share of: the Commonwealth says "monitoring data are not suitable for Australian population estimation at this time", and the official flyway estimate is 30,000, of which 18 birds are 0.06 per cent. The 18-bird threshold exists because the species is cryptic and rarely seen in numbers, so it is a test of the habitat's importance, not of a share of the population.[625]
- **The Commonwealth's current position.** The 2024 advice uses the same 18-bird test, and says that such important habitat "is considered habitat critical to the survival of the species", whose degradation or loss "must be avoided".[626] The snipe is assessed here as a migratory species [15], but the advice is the Commonwealth's current statement of what important habitat means. The 2024 habitat guidelines add that, where a site supports 18 or more snipe, "any planned changes to land use (no matter how minor) may require referral to the Commonwealth".[627]
- **Downstream.** The bird usually inhabits open freshwater wetlands, but "can also occur in habitat with saline or brackish water", and it "abandons seasonally drying wetlands".[628] The guidelines rate salinisation a "Low-moderate" threat, because snipe "readily use brackish and saline habitats of suitable depth and vegetative cover".[629] Downstream, drying matters more to it than salinity [131].

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[620] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, pp. 25-34, 25-35.
[621] Hansen, B., Walters, J. and Akers, R. 2024, *Guidelines for restoring and managing wetland habitat for Latham's Snipe*, Latham's Snipe Project, executive summary, habitat description and threats table (PDF pp. 3, 8, 11).
[622] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-33.
[623] Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Gallinago hardwickii (Latham's snipe)*, pp. 6-7.
[624] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, pp. 25-34, 25-35.
[625] Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Gallinago hardwickii (Latham's snipe)*, pp. 2, 7-8, 19; Commonwealth of Australia 2017, *EPBC Act Policy Statement 3.21: Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species*.
[626] Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Gallinago hardwickii (Latham's snipe)*, p. 8.
[627] Hansen, B., Walters, J. and Akers, R. 2024, *Guidelines for restoring and managing wetland habitat for Latham's Snipe*, Latham's Snipe Project, executive summary.
[628] Ibid., p. 6.
[629] Hansen, B., Walters, J. and Akers, R. 2024, *Guidelines for restoring and managing wetland habitat for Latham's Snipe*, Latham's Snipe Project, threats table (PDF p. 11).

142. No clearing window in the EES avoids the birds. Measure ECMM14 sets removal of wetland habitat for February to August, to avoid waterbird breeding, but October to February where the Glossy Grass Skink occurs, and does not say which prevails at the ponds that hold both.[630] The bittern breeds "from October to February",[631] so a window opening in February starts inside its breeding season. Latham's Snipe arrive in south-eastern Australia "between August and November" and most leave "by late February or early March",[632] so clearing in February or August would find them present; Chapter 25's own window for the snipe, "approximately April to September", runs into the August and September arrivals.[633] A March to July window avoids both (Part H, B13).

143. The same surveys show how thin the shorebird record has become. Over 2012 to 2023, the godwit and greenshank were recorded in 8 of 12 years, Latham's snipe in 7 and the sharp-tailed sandpiper in all 12. The red knot appeared only in 2015 and the curlew sandpiper only in 2017 and 2020, and the red-necked stint's reporting rate declined. The surveys cover about 7 per cent of the site,[634] so these records do not show a limit breached. They show that the species the EES's 2010 absence limit relies on are at the margin of detection, which is why the current presence limits matter [95]. A review of long-term shorebird monitoring at Australasian Ramsar sites found the sharp-tailed sandpiper declining, but with too little data to say whether it is outside its limit, as Gell and Finlayson pointed out to the authors of the draft Ramsar plan.[635]

144. Post-2023 listings do not excuse the omission. The EES treats species listed after the controlled action decision of 20 February 2023 as not requiring assessment.[636] Section 158A supports the use of the earlier statuses [15], but it leaves three things untouched:

- **Migratory status:** every shorebird in the table except the painted snipe was a listed migratory species before 2023, and ss 20 and 20A are controlling provisions.
- **Earlier threatened listings**:
  - eastern curlew and curlew sandpiper from 2015;
  - the knots and both godwit subspecies from 2016;
  - the frogs from 2000, the bittern from 2011 and the painted snipe from 2013.
  - In January 2024 some categories were revised, and the sharp-tailed sandpiper, greenshank and Latham's snipe were listed as threatened for the first time.[637]
- **Ramsar character:** the presence of the bittern and of four of these shorebirds is part of the site's character under the current limits (Table 4, S1), which ss 16 and 17B protect.

145. The EES's conclusion on migratory birds depends entirely on its hydrology conclusions. Chapter 25 concludes that birds using the site "would not be significantly impacted" because hydrology and water quality are not,[638] so the conclusion stands or falls with Part C and [95] to [104]. For these species the Minister must also not act inconsistently with Australia's obligations under the agreement because of which each is listed: the Bonn Convention, CAMBA, JAMBA or an agreement approved under s 209(4) (s 140). The bilateral migratory bird agreements commit each

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[630] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-39 (ECMM14) and Table 15-5.
[631] Threatened Species Scientific Committee 2019, *Conservation Advice: Botaurus poiciloptilus, Australasian Bittern*, p. 3.
[632] Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Gallinago hardwickii (Latham's snipe)*, p. 6.
[633] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-35.
[634] Healey, C. 2026, *Wetland Birds in the Gippsland Lakes*, pp. 30, 32, 74-75, 5.
[635] Gell, P.A. and Finlayson, C.M. 2024, *Submission on the draft Ramsar Site Management Plan*, p. 3.
[636] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-29; ENGIE Hazelwood 2026, *Technical Report H1*, executive summary notes; *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s 158A.
[637] BirdLife Australia 2024, *Australia's Threatened Species List got longer*; Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Gallinago hardwickii (Latham's snipe)*, in effect from 5 January 2024.
[638] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-34.

party to endeavour to preserve and enhance the environment of the birds they protect. FoGL asks that the assessment address them.

D5 Avoidance, mitigation and offsets

Avoidance identified and not taken

146. The EES and the IESC identify two ways to avoid harm, and the proponent takes neither.

- **The unconnected option.** It avoids 0.743 ha of Swampy Riparian Woodland, an Endangered vegetation class; the bank works in Platypus and Grayling habitat; the risk of fish trapped in the pit lake; the outflow channel area where the bittern was seen; and 7.5 ha of Latham's Snipe habitat.[639] The IESC applied the mitigation hierarchy and strongly recommended it [70]. The proponent's answer was that "there is a judgement to be made" (Table 3).
- **Keeping the reedbeds.** The EES says three times that residual impacts on various species "could be avoided and minimised if alternative remediation options that do not involve the decommissioning and removal of the relevant water storages are developed and implemented in consultation with the EPA".[640] It then calls the removal "unavoidable" because the EPA's notices require the clean-up, without showing why the clean-up could not keep a reed fringe, though works are to retain wetlands "where feasible".[641]

The 2012 Offsets Policy says offsets "will not be considered until all reasonable avoidance and mitigation measures are considered, or acceptable reasons are provided as to why avoidance or mitigation of impacts is not reasonably achievable".[642] FoGL credits the avoidance that was achieved: the inflow channel is sited in ground already disturbed, and No Go Zones protect 23 Strzelecki Gums.[643]

Mitigation assumed to work

147. Several measures are uncertain on the EES's own account, and the conclusions assume they work. Fish deterrents "may not completely prevent fish movement toward the pit lake";[644] Glossy Grass Skink translocation awaits approval and has no success criteria; Flinders Pygmy Perch salvage is "to the satisfaction of DEECA"; and ECMC01, the check on whether mitigation works, has its frequency "To be defined in monitoring program" and runs only "Throughout the rehabilitation works".[645] The Scoping Requirements asked the EES to "assume the worst-case scenario where the effectiveness or viability of mitigation measures is uncertain".[646] The clearing windows are dealt with at [142]. The Commonwealth's guidelines set the bar: a proponent "should not conclude that a significant impact is not likely to occur because of management or mitigation measures unless the effectiveness of those measures is well-established" and "there is a high degree of certainty about the avoidance of impacts or the extent to which impacts will be reduced" (Guidelines 1.1, p. 5).

What the offsets and other measures cover

148. Offsets are not doing all the work; they are doing very little. On land, 1.0130 General Habitat Units are the only compensation offered, and conclusions of no significant impact do the rest.

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[639] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, Table 15-9; Chapter 25, pp. 25-29, 25-34.
[640] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, pp. 15-25, 15-46; Chapter 25, p. 25-21.
[641] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-25.
[642] Department of Sustainability, Environment, Water, Population and Communities 2012, *EPBC Act Environmental Offsets Policy*, p. 7.
[643] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-25.
[644] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-32.
[645] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, Tables 15-11 and 15-12 (ECMM21, ECMM22, ECMC01).
[646] Department of Transport and Planning 2023, *Scoping Requirements*, s 4.3, p. 20.

For water, the conclusion of no material impact on MNES rests on an offset nobody has designed and on measures others must deliver:

Impact	What is offered
25.78 ha of native vegetation	1.0130 General Habitat Units, bought as third-party credits (Chapter 15, p. 15-44)
Cooling Pond Tall Marsh	Nothing: regrowth exemption [137]
Four FFG-listed species whose local populations may be significantly affected	Nothing: no species offset [139]
The bittern and Latham's Snipe	Nothing: impacts concluded not significant (D3, D4)
Morwell River flood water taken (connected option)	CM1, an offset whose mechanism "has not been explored" [150]
Reduced flows to the Ramsar site	CM2: State water returns and LVRRS conditions "implemented by parties other than ENGIE Hazelwood" [151]

149. Technical Report D's conclusion of no material impact on MNES is expressly conditional. It holds "subject to the implementation of the mitigation measures, the monitoring and contingency measures and the complementary measures".[647] There are two complementary measures.

150. CM1, an offset for the flood water, has not been designed. Technical Report D accepts that the Morwell flood water is "'above cap' water that is currently reserved for the environment", and proposes an equivalent offset. But "The mechanism for such an offset has not been explored and would require further development in conjunction with DEECA".[648] The Scoping Requirements required an offset strategy and management plan "that sets out and includes evidence of the offsets proposed to be secured", with any departure from avoidance justified under the mitigation hierarchy.[649] Neither exists.

151. CM2 consists of actions others must take. It comprises Victorian policy actions "implemented by parties other than ENGIE Hazelwood":[650]

- the Sustainable Water Strategy returns, including the 13 GL Tyers return and returns to the Thomson and Macalister,[651] most of which, the Tyers included, have not started (Part C, [62] to [64]); and
- the LVRRS conditions, which Technical Report D notes were identified for Yallourn and Loy Yang, not Hazelwood, and "would ultimately be imposed at the discretion of the Minister for Water".[652]

152. A conclusion that depends on others acting is not a conclusion of no impact. It rests on:

- an offset nobody has designed;
- water returns the State has not begun;
- conditions that bind other mines; and
- a drought reduction that Gippsland Water, not the proponent, decides [193].

It is a conclusion of no impact if others act.

153. The Ramsar site manager defers to this EES, which defers elsewhere. Stakeholders raised mine rehabilitation in the Ramsar plan's risk assessment. The plan recorded that these projects "may represent significant threats to the ecological character of the Ramsar site", but deferred to "a separate, rigorous process that is currently underway". It adds that their effect on water

[647] ENGIE Hazelwood 2026, *Technical Report D*, s 9.8.5, p. 261.
[648] Ibid., p. 274.
[649] Department of Transport and Planning 2023, *Scoping Requirements*, pp. 15, 20.
[650] ENGIE Hazelwood 2026, *Technical Report D*, p. 274.
[651] Ibid., pp. 274-275.
[652] Ibid., p. 275.

quantity and regimes "is not known".[653] The EES defers a thorough cumulative assessment to the next LVRRS review, and its conclusion of no material impact on MNES to measures others must deliver [149] to [152]. The threat the site manager identified is assessed in full by none of them.

The offset package against the 2012 Policy

154. None of the three measures meets the Policy's tests. Tested against the Policy:[654]

Test	Victorian general offset	CM1: flood water offset (connected option)	CM2: State water returns and LVRRS conditions
Like-for-like	No. Units can come from anywhere in the West Gippsland CMA region or Latrobe City at a minimum strategic score of 0.3848; nothing requires wetland, Tall Marsh or waterbird habitat. The Policy expects offsets "tailored specifically to the attribute of the protected matter that is impacted" (p. 8)	Undefined: "an offset, of an equivalent volume of water, for the environment", whose mechanism "has not been explored". Water in storage cannot replace flood flows: the larger freshes "cannot be delivered without inundating private land" (watering plan, p. 27) [121]	No. The returns go to the Tyers and the Latrobe to meet existing shortfalls, not to replace the take
Additional	Third-party credits are additional, but replanting the restored Eel Hole Creek, rehabilitation the proponent must do anyway, is said to "potentially support losses elsewhere" (Chapter 15, p. 15-2); the Policy requires gains "additional to what is already required" (p. 22)	Unknown	Fails. These are the State's 2022 commitments; the 13 GL Tyers return is to come out of the Moondarra entitlement the project draws on, and that policy "may impact future supply arrangements for Hazelwood" (Technical Report B, p. 76)
Timely: before or with the impact (p. 23)	A native vegetation permit normally requires the offset secured before removal	Not designed; the take starts with filling	The Tyers return (due 2032) and the larger Latrobe return (due 2029) are "Not yet started" (progress report, pp. 18-19); the take starts first
Legally secured (p. 19)	Adequate: an on-title agreement (Chapter 15, p. 15-44)	None proposed	Policy commitments, not legal instruments
Funded by the proponent (p. 24)	Proponent buys credits	Not addressed	The State, not the proponent
Managed, monitored and reported (p. 24)	No offset management plan	Not addressed	Not addressed
Risk of failure (p. 6)	Not addressed	The connected take would go uncompensated	If the returns slip, the take is unaffected (condition 3)

155. The native vegetation offset cannot be checked from what is exhibited. Chapter 15 gives only the headline, determined "using the Native Vegetation Regulation Map produced by DEECA", at a minimum strategic score of 0.3848; the condition scores and the Native Vegetation Removal report are not exhibited.[655] The extent does not reconcile [137]. No species offset was

[653] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, pp. 44, 129.
[654] Department of Sustainability, Environment, Water, Population and Communities 2012, *EPBC Act Environmental Offsets Policy*, pp. 6-8, 19, 22-24; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, pp. 15-2, 15-44; ENGIE Hazelwood 2026, *Technical Report D*, pp. 274-275; Department of Energy, Environment and Climate Action 2025, *Sustainable Water Strategy 2024-25 Progress Report*, pp. 18-19; ENGIE Hazelwood 2026, *Technical Report B*, p. 76.
[655] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-44.

considered for the four FFG-listed species, though the Victorian Guidelines decide species offsets from DEECA's habitat importance maps, not from the EES's significance conclusions. The Scoping Requirements asked for an offset strategy and offset management plan, and for how offsets "will be secured, managed and monitored, including management actions, responsibility, timing, performance measures and the specific environmental outcomes to be achieved";[656] Chapter 15 answers only that credits are "currently available".[657]

156. Existing offsets on the site are not addressed, and a claimed benefit is not secured. ENGIE manages "EPBC Act and net gain offset sites" at Hazelwood,[658] including the Eel Hole Creek Offset Area, the Strzelecki Highway Conservation Area and Strzelecki Gum plantings beside the Morwell River required for the West Field Project's EPBC compliance.[659] The EES does not say whether the works, the drawdown at the Cooling Pond or the transfer of the land after relinquishment affect them; under the Policy, an action likely to affect an existing EPBC offset should be referred to the department.[660] The EES also says the pit lake will enable "the future reallocation of these water supplies to other priorities in the Latrobe River system",[661] but nothing secures that water for the environment rather than for other consumptive uses.

157. Against the Policy, requirement by requirement, the EES complies only in a narrow sense. It proposes no EPBC offset because it concludes there is no significant residual impact. If those conclusions do not hold (D3, D4), almost every requirement is unaddressed:[662]

Requirement (Policy page)	What the EES does	Met?
Offsets only for significant residual impacts, after reasonable avoidance and mitigation (p. 7)	No EPBC offset; no significant residual impact concluded	Only if the bittern, snipe and Ramsar conclusions hold, and avoidance was not available (D3, D4, [146])
"Clear information about the scale and intensity of impacts" and the on-ground benefits (p. 8)	Habitat areas not tabulated; Ramsar effects reported on the medium climate	No
At least 90 per cent direct offsets, for the full duration of the impact (p. 8)	CM1 and CM2 are not direct offsets; the take and the top-up are perpetual	No
Additional to what is already required (p. 22)	CM2 consists of existing State commitments	No
Timely: before or with the impact (p. 23)	Returns not started; the take starts with filling	No
Legally secured for at least the duration of the impact (p. 19)	Nothing for CM1 or CM2	No
Accounts for the risk of the offset failing (p. 6)	Not addressed	No
Measurable, monitored, audited and enforced, at the proponent's cost (p. 24)	Not addressed	No
Impacts on existing EPBC offsets referred to the department (s 7.2.2, p. 19)	Existing offsets on the site not addressed	Gap

The Policy predates the water trigger and says nothing specific about water resources, but the Scoping Requirements apply it to any EPBC offset proposed, and CM1 is one. Chapter 15 claims compliance with Victoria's 2017 native vegetation Guidelines; the gaps are the inputs and the species

[656] Department of Transport and Planning 2023, *Scoping Requirements*, s 4.3, pp. 20-21.
[657] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, p. 15-44.
[658] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 26, Table 26-2, p. 26-9.
[659] AECOM 2021, *Preliminary Ecology Appraisal Report*, Attachment 4 to Referral 2021-R06, p. 11.
[660] Department of Sustainability, Environment, Water, Population and Communities 2012, *EPBC Act Environmental Offsets Policy*, s 7.2.2, p. 19.
[661] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-37.
[662] Department of Sustainability, Environment, Water, Population and Communities 2012, *EPBC Act Environmental Offsets Policy*, pp. 6-8, 19, 22-24.

offset check [155], an avoid-and-minimise case that rests on the EPA notices [146], and the missing offset strategy and offset management plan.

The Scoping Requirements for biodiversity

158. Several of the Scoping Requirements for biodiversity are unmet. In summary:[663]

Requirement (page)	Status
Seasonal or targeted surveys in line with guidelines and recovery plans (p. 20)	Not met for the wetland birds [137]
Downstream impacts, including the Ramsar site and the Morwell River wetlands (p. 20)	Desktop only; the Southern Wetland is outside the ecology study area [133]
Cumulative effects, including other threatening processes (p. 20)	Undetermined for the listed species assessed; none for the bittern [138]; the listed flow-regime and wetland-loss processes are not applied to the take [21]
The worst case where mitigation is uncertain (p. 20)	Not applied [147]
Measures shown consistent with recovery plans and threat abatement plans (p. 20)	Not shown
Offset strategy and offset management plan, with evidence (p. 20); how offsets are secured, managed and monitored (p. 21)	Absent [155]
A framework for unexpected effects on biodiversity (p. 21)	ECMC01 only, frequency "To be defined"

D6 What FoGL seeks

159. To the Commonwealth:

- (a) Ramsar wetland: a reassessment against the revised limits.[664] It should include a computed probability distribution of continuous dry duration at Sale Common, Dowd Morass and Heart Morass, for the baseline and each scenario, under medium, high and post-1997 runoff behaviour, against the 36 and 60 month limits.
- (b) Ramsar wetland, threatened and migratory species: a significant impact assessment at the Ramsar site covering:
    - the Australasian bittern in the lower Latrobe wetlands;
    - the threatened species listed before 2023: curlew sandpiper, eastern curlew, great knot, red knot, both bar-tailed godwit subspecies, the Australian painted snipe and the two frogs; and
    - as listed migratory species, the sharp-tailed sandpiper, red-necked stint, common greenshank and Latham's snipe.
- (c) Water resource: application of the sustainable-level limb of Guidelines 1.3 against the 129 GL/yr shortfall, treating the full take as the action (Part B).
- (d) Ramsar wetland: a statement of which ecological character description the action is assessed against [125].
- (e) All four provisions: an assessment of whether the 2023 findings at [88] have been answered, and if so on what evidence. It should cover the matters the delegate and its advisers identified for the assessment and which the EES does not address: PFAS management, contaminant movement from the void into the Morwell River through the reconnected groundwater system, and potential impacts on the Corner Inlet and Western Port Ramsar sites through groundwater connectivity.
- (f) Ramsar wetland: if approval is given, a condition requiring annual assessment against the current limits with pre-agreed responses, and treating the lower Latrobe wetland watering infrastructure as project measures (Part H, condition 6).

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[663] Department of Transport and Planning 2023, *Scoping Requirements*, s 4.3, pp. 20-21; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, Table 15-12.
[664] Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 3.

- (g) Water resource and Ramsar wetland: the change in flow events per year at Thoms Bridge, Rosedale, Kilmany South and the Swing Bridge, for the February to May and spring freshes, the estuary freshes and flows above 4,100 ML/day, under the medium and high climate scenarios [60], [118].
- (h) Threatened species: a significance assessment for the lower Latrobe Grayling as an important population [134]; an assessment of the bittern on site that applies the conservation advice's description of critical habitat [132]; and cumulative assessments for the bittern and the listed fish [138].
- (i) Migratory species: an assessment of Latham's Snipe that treats the important habitat on site as habitat whose loss "must be avoided", with the similar habitat relied on mapped [141].
- (j) Avoidance, mitigation and offsets: an offset strategy and offset management plan meeting the 2012 Policy for any residual significant impact, and a statement of whether existing EPBC offsets on the site are affected [157], [156].

160. FoGL submits that the IAC should find, under cl 28(g) of its Terms of Reference, that the Ramsar assessment was made against limits the State has since revised, and seeks a direction for the reassessment at [214], item 6, and for the information at [214], items 13 to 15, before the Hearing.

161. FoGL submits that the IAC should find that Technical Report D's conclusion of no material impact on MNES cannot be relied on while the complementary measures remain undelivered (cl 28(b), (g)). It seeks a recommendation that no flood water be taken unless the Water Act permits it [216] and the CM1 offset has been designed, agreed with DEECA and gazetted.

162. FoGL seeks a recommendation that any approval not depend on measures to be implemented by parties it does not bind (cl 28(g)).

163. FoGL asks the IAC to make the findings set out by provision at [224]. It also asks the IAC to recommend the controls at [225] and, if the action is approved despite those findings, the fallback controls B1 to B13 and the Victorian conditions V1 to V5 [236], [237].

Part E: Traditional Owner and community values

Finding sought. Traditional Owner values are assessed against the increment, not the full take, and the Tanjil, where the State's conditions increase some risks, is left out of the cumulative conclusion [166], [172]. Headline issue 1.

In short: FoGL's water evidence bears on Gunaikurnai and community values; FoGL defers to GLaWAC on their significance.

FoGL's position

164. FoGL does not speak for the Gunaikurnai. The Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) is the Registered Aboriginal Party for the project area and the proper voice on Gunaikurnai values. The evaluation objective for cultural heritage is to be pursued "in partnership with Traditional Owners".[665] FoGL records the matters below only because the water evidence in Parts B to D bears on that objective. It defers to GLaWAC on their significance, and supports any request GLaWAC makes for further information.

What the record shows

165. The project's downstream effects fall on the places Gunaikurnai water objectives emphasise. The studies the EES relies on record that, for the Gunaikurnai, water for the Latrobe Valley "requires considering the upper catchments, the Latrobe River system, the Lower Latrobe Wetlands, and ultimately, through to the Gippsland Lakes".[666] The Gunaikurnai cultural water

[665] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 6, Table 6-1.
[666] Alluvium 2023, *Conditions for water access for mine rehabilitation*, p. 32.

objectives identify the Latrobe estuary and the lower Latrobe wetlands as meeting places. They name the rookery at Dowd Morass and black swan nesting at Sale Common and Heart Morass. Among the species of significance for fishing and hunting they name Noy yang (eels) first, with Australian Bass, River Blackfish, Estuary Perch and Kine (Black Bream); among birds, Gidai (black swans), Nalbong (water hens) and Koortgan (ducks); and they set an objective for Balagen (platypus) [119].[667] Those are the reaches and wetlands Parts C and D address. The State's 2026-27 watering plan records GLaWAC's current position. Its September 2025 statement, Healing Wurruk After Coal, seeks the "connection of Durt'Yowan to its wetlands and floodplains", and the cultural values of Durt'Yowan extend to "maintaining a natural, seasonal flow regime and overbank flood events". GLaWAC has observed that the absence of government ecological monitoring of Durt'Yowan in 2025-26, "particularly as the system transitions toward a future shaped by mine rehabilitation, presents a significant risk", and seeks monitoring "to inform the impacts of changed water regimes from water storage dams, urban and mine supply and other uses".[668] FoGL supports that request.

166. The EES's sources record a risk to Traditional Owner values that its conclusions leave out. Under the LVRRS conditions adopted for the other two mines, taking water at gross historical take "materially decreases some risks and materially increases other risks to environmental and Traditional Owner values in the Tanjil River".[669] Yet Technical Report D's cumulative conclusion omits the Tanjil. The State records that the baseline risks to those values "are high".[670] The proponent told the Commonwealth it would investigate implications for Traditional Owners "that may be affected by use of the water".[671] Whether that has been done is for GLaWAC to say.

167. Traditional Owner risk was assessed against a baseline that already includes the take. The Alluvium 2023 study made its Traditional Owner risk assessment against the same baseline as its environmental one, which carried Hazelwood's 20 GL/yr as notional future industrial demand.[672] No assessment of this project treats the first 20 GL/yr as an effect on Traditional Owner values, any more than on environmental ones.

168. The Gunaikurnai entitlement should not be counted as environmental water. The 2025 reallocation of the Latrobe 3/4 Bench created a 5.333 GL entitlement for the Gunaikurnai, alongside equal shares for the environment and agriculture.[673] How it is used is a matter for GLaWAC. The EES models 15 GL/yr of environmental water for all configurations,[674] and should not count the Gunaikurnai entitlement toward it on the river's behalf.

169. The alternatives assessment scored the selected options 2 out of 5 on intangible cultural heritage. That compares with 3 for the desalination and Eastern Treatment Plant alternatives; the Gippsland Water Factory option also scored 2.[675] FoGL records the scores without interpreting them.

170. The Cultural Heritage Management Plan has not been exhibited. It is being prepared concurrently. Tangible cultural heritage on the project site lies outside FoGL's concern.

Community values

171. The Lakes are a place where people live and work, not the end of a hydrological model. FoGL's members live around them, at the downstream end of everything this EES assesses. The Lake Wellington catchment is home to about 160,000 people. Its agriculture produces about $750 million a year, and tourism and recreation on the Lakes are "critical to the regional economy".[676] The

[667] Alluvium 2020, *Latrobe Environmental Water Requirements*, s 5, pp. 102, 104.
[668] Victorian Environmental Water Holder 2026, *Seasonal Watering Plan 2026-27*, p. 30.
[669] ENGIE Hazelwood 2026, *Technical Report D*, Table 109, p. 260.
[670] Department of Energy, Environment and Climate Action 2023, *Explanatory note on surface water access*, p. 12.
[671] ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239*, p. 17.
[672] ENGIE Hazelwood 2026, *Technical Report D*, Table 108, p. 259; Part B.
[673] Department of Energy, Environment and Climate Action 2025, *Sustainable Water Strategy 2024-25 Progress Report*, Action 4-8, p. 9.
ENGIE Hazelwood 2026, *Technical Report D*, Attachment 2, p. 5; Part C, [62] to [64].
[675] ENGIE Hazelwood 2026, *Attachment I*, Table ES-4, p. x.
[676] West Gippsland Catchment Management Authority 2018, *Lake Wellington Land and Water Management Plan 2018-2028*, pp. 7, 8.

site's ecological character, as summarised for the Commonwealth by CSIRO, includes tourism and recreational activities "that are significant to the regional economy".[677] Domestic visitors spent $525 million in East Gippsland and $228 million in Wellington, the two shires that border the Lakes, in the year to December 2024.[678] Across the Gippsland tourism region, tourism contributed $1,009 million, 5.7 per cent of gross regional product, and 11,800 jobs, 8.9 per cent of the region's jobs, in 2022-23.[679] That economy depends on the water: seafood advice was in place across the Lakes in June 2026, after fish deaths at Loch Sport (Annex 1, section 1.5). When the EES finds a downstream change "measurable but not substantial",[680] it is describing the water that reaches that community, and the Assessment should weigh it that way.

What FoGL seeks

172. FoGL requests, noting that the IAC must consider GLaWAC's views on the project:

- (a) that the Assessment treat GLaWAC's views as the authoritative account of Gunaikurnai values, and give effect to any request GLaWAC makes for further information;
- (b) that the rerun sought at [214], item 4, not count the Gunaikurnai entitlement as environmental water unless GLaWAC so decides; and
- (c) that the cumulative scenario sought at [214], item 5, report effects on Traditional Owner values in the Tanjil, and assess Traditional Owner values against the full take rather than the increment (Part B).

Part F: Alternatives

Finding sought. The alternatives analysis scored downstream ecology as nil, and a capped river take with a manufactured-water supplement was never scored; the fill can pause at intermediate levels ([211](j); Point 19; condition 8). Headline issue 4.

In short: the alternatives analysis never scored the downstream cost of the take, and never scored the option that avoids it.

Why alternatives matter to this EES

173. Alternatives are part of why this EES was required. The Minister's reasons included that an EES "would enable... opportunities to avoid or minimise significant adverse effects through alternatives (e.g. landforms, water sources)".[681]

174. The EES keeps every alternative water source out of its modelling. The groundwater and surface water models consider only the project description's sources. The Gippsland Water Factory and desalination "are not considered further in this document and associated modelling".[682] The Commonwealth expected otherwise. Its Office of Water Science recorded "its surprise that sourcing water from the Wonthaggi desalination plant, only 100km away, does not appear to have been considered". The Commonwealth Environmental Water Office concluded that the referral did not

[677] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site and its catchment to bushfire and climate change*, p. 21.
[678] Destination Gippsland, *Domestic visitor expenditure for Greater Gippsland*, year ending December 2024, Tourism Research Australia data (National Visitor Survey, International Visitor Survey and Regional Expenditure Model).
[679] Department of Jobs, Skills, Industry and Regions 2025, *Value of tourism to Victoria and its regions*, Gippsland region, 2022-23 regional tourism satellite account.
[680] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-13.
[681] Minister for Planning 2022, *Reasons for Decision, referral 2021-R06*, reason iii; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-5.
[682] ENGIE Hazelwood 2026, *Attachment IV*, s 1.5.2, p. 7.

consider alternatives to Latrobe fresh water, naming desalinated and recycled water.[683] The method of the one analysis that did consider them therefore matters.

175. Desalinated water was excluded on policy grounds, not environmental ones. Attachment I records that the "key fatal flaw" of the Wonthaggi alternative is that its water "will not be available for uses other than water supply for Melbourne and other cities and towns".[684] That is State water policy, which the State could change. Submissions on the draft scoping requirements had asked that desalinated and recycled water be investigated, and that "the Morwell River should only be used as a last resort".[685] Policy has since moved. The 2025 Water Security Plan records that Wonthaggi can be expanded by 50 GL a year beyond its current 150 GL, and that a new plant could deliver another 150 to 200 GL a year.[686]

176. The State's manufactured water report cuts both ways. Chapter 3 relies on GHD's 2024 report for DEECA on concepts for sourcing manufactured water, published with a DEECA cover note but not exhibited.[687] It cites the report's "various limitations regarding the feasibility and cost", and the State's view that desalinated seawater is "prohibitively expensive".[688] The report itself:

- found manufactured water technically feasible but complex and expensive;
- recorded Gippsland Water's advice that the Factory's water is limited, unlikely to change fill times materially, and available only when not committed to other users, so least available in dry periods;[689]
- contemplates manufactured water for top-up "into perpetuity", at the mine licensee's cost.[690]

Chapter 3 puts a fill on the Factory alone at 30 to 35 years, its supply being 2 to 3 GL/yr.[691]

How the alternatives were scored

177. Eight alternatives were scored on sixteen equally weighted criteria. Thirteen were identified. Each criterion was scored from 1 to 5, five being most favourable, and "An equal weighting was applied to each criterion"; weighting was considered and rejected.[692] Two full pit lakes to RL +45 m supplied from reservoirs were carried forward: Alternative 5 (58 points), and Alternative 6, which adds the Morwell River connection (57). Table 5 sets out the full scores.[693]

178. The selected alternatives score worst on the criterion the Lakes depend on, and win anyway. On "surface water resources" both score 2 out of 5, the lowest of all eight. The Factory option scores 3, and the options not reliant on the river score 4 or 5. Under equal weighting, surface water and ecology, the two criteria that carry the downstream cost of the take, count for two sixteenths of the decision: the same as cost and approvals together. Neither was scored on that cost [179] to [181].

Downstream ecology was scored as nil

179. The criteria were written to capture downstream effects. "Surface water resources" includes "Changes in flood flows affecting downstream environmental values which are to be

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[683] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 23; Office of Water Science 2022, *Advice OWS 2022-051 on referral 2022/09239*; Commonwealth Environmental Water Office 2022, *Wetlands advice on referral 2022/09239*.
[684] ENGIE Hazelwood 2026, *Attachment I*, Executive Summary.
[685] Ibid., pp. 5-6.
[686] Department of Energy, Environment and Climate Action 2025, *Water Security Plan for Greater Melbourne, Geelong and connected towns*, p. 8.
[687] GHD 2024, *Concepts for sourcing manufactured water for mine rehabilitation in the Latrobe Valley*; Department of Energy, Environment and Climate Action 2024, *Concepts for sourcing manufactured water for mine rehabilitation in the Latrobe Valley: cover note*.
[688] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 3, p. 3-5; Chapter 3, p. 3-11.
[689] GHD 2024, *Concepts for sourcing manufactured water*, p. 9.
[690] Department of Energy, Environment and Climate Action 2024, *Manufactured water cover note*, p. 2.
[691] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 3, p. 3-13.
[692] ENGIE Hazelwood 2026, *Attachment I*, pp. ix, 30-31, 51.
[693] Ibid., Table ES-4, p. x.

protected". "Ecology" includes changes "affecting downstream aquatic habitat and water dependent ecosystems, including groundwater dependent ecosystems and Gippsland Lakes".[694]

180. The scoring sheets do not apply either definition.

- Alternative 5's surface water score rests on supply alone: 467 GL needed, 50 to 55 per cent from reservoirs, within Gippsland Water's existing entitlement, with "potential to limit the availability of water for other commercial purposes".[695]
- Its ecology score rests on the entitlement: because use "would be within the existing Bulk Water Entitlement", impacts on water dependent ecosystems "would not be anticipated".[696]
- Alternative 6's ecology score records "confined on-site ecological effects"; Alternative 7's records no significant on-site impacts.[697]

181. The downstream cost of the take was assumed away, not scored. The reason given was that the water sits inside Gippsland Water's 1997 entitlement. That is the same argument the EES uses against the IESC on the Tyers and against the Commonwealth's sustainable-level test [34]. Attachment I itself records "a potential negative impact on catchment-wide resources" for the preferred alternative. For the connected one, it records that harvesting flood peaks "may ultimately reduce water volumes in the Gippsland Lakes for salt amelioration".[698] Neither observation reached a score.

What decided the ranking

182. Cost did not separate the preferred option from recycled water. Alternative 5 and the Gippsland Water Factory option (Alternative 7) both score 5 on cost, the Factory's costs being "similar in scale to those for Alternatives 5 and 6".[699] Cost, approvals, ecology and off-site water quality are all tied between them. The desalination and Eastern Treatment Plant options scored 1 on cost (Table 5); FoGL's point concerns the Factory.

183. Alternative 5's fifteen-point margin over Alternative 7 comes from these criteria:

Criterion	Margin
Fire risk	+3
Groundwater resources	+3
Landform stability and movement	+2
Erosional stability	+2
Community amenity and wellbeing	+2
Greenhouse gas emissions	+2
Groundwater quality	+1
Pit lake water quality	+1
Surface water resources	-1
Total	**+15**

184. Most of that margin follows from how long the fill takes. Attachment I attributes five penalties to "the longer duration of lake filling", "potentially an additional decade":[700]

- instability, erosion and fire arise during "the extended period of batter slope exposure";
- community amenity from "The extended lake fill period";
- groundwater from "an extended groundwater depressurisation pumping period".

[694] Ibid., p. 29.
[695] Ibid., p. 76.
[696] Ibid., p. 77.
[697] Ibid., pp. 81, 85.
[698] Ibid., pp. 45, 80.
[699] Ibid., pp. 45, 47.
[700] Ibid., p. 46.

The greenhouse penalty arises partly from the same pumping. So twelve of the fifteen points follow wholly from fill duration, and two more partly. Only the two water quality points concern the water itself, and they rest on recycled water being of poorer quality than reservoir water. The assessment did not find manufactured water unaffordable, unapprovable or worse for the river. It found that a slower fill leaves the batters exposed for longer. FoGL's combined option does not rely on the Factory for the fill [176], [186].

185. Uncertainty of supply was held against manufactured water and not against the river. Attachment I marked Alternative 7 down partly because the Factory's water is available only when not committed to other users, which "might be more likely to arise during periods of drier climatic conditions".[701] Moondarra comes from the same supplier, under an agreement with "no minimum supply commitment" that gives other users priority.[702] It is projected to fall to 2.48 GL/yr nine years in ten by 2040 under a dry climate (Part C, [39] to [48]). The State's 2024 report confirms the same uncertainty attaches to both [176]. Only one source was penalised for it.

The option that was never scored

186. No scored alternative combines sources, and the combination avoids the downstream cost. Every scored alternative relies on a single dominant source. The obvious combination was never put to the workshops:

- a full pit lake to RL +45 m;
- surface take held at Hazelwood's net historic use of 10.3 GL/yr;
- groundwater at the volume that has kept the void stable, about 11 to 12 GL/yr [46], with Gippsland Water Factory recycled water, which Attachment I found comparable in cost, as a supplement where available;
- batter rehabilitation sequenced on its own timetable rather than on the water level; and
- recycled or other manufactured water, not Moondarra, for top-up once full.

Batter exposure is then managed by earthworks sequencing rather than pit lake level, and the surface water penalty falls away. The option was missed because the analysis bundled the landform and supply questions and scored the bundles. Its fill rests on the river at the cap plus stability groundwater, not on the Factory [176].

The EES's baseline fills the remaining 467 GL at about 32.5 GL/yr in about 15 years.[703] Scaling that, roughly 22 GL/yr (10.3 GL of river water and about 12 GL of groundwater) would take about 21 years. That is a proportional estimate, not modelling: it ignores evaporation rising with pit lake area. It sits inside the 10 to 35 years the Minister described [44], and FoGL requests that the option be modelled [214].

Whatever the final level, the pace of the fill matters

187. FoGL reserves its position on the final pit lake level, including the geotechnical case for RL +45 m, until the stability studies it depends on are exhibited [188]. Its concern here is the water cost and the pace of the fill. The proponent's study rates pit lake levels as follows:[704]

- below RL +30 m: unviable;
- +30 to +40 m: low;
- +40 to +45 m: moderate;
- RL +45 m and above: high, and the only level meeting the licence's batter stability criteria.

[701] Ibid., pp. 47, 85.
[702] ENGIE Hazelwood 2026, *Technical Report B*, p. 99.
[703] ENGIE Hazelwood 2026, *Technical Report D*, p. 53.
[704] CMQ 2025, *Pit lake level study*, executive summary, pp. ii-iii.

On the proponent's account, a lower level would leave coal exposed, with a continuing fire risk, and require depressurisation pumping in perpetuity. DEECA's 2025 study found a full fill more "robust" for the other two mines, but left Hazelwood to this EES and the DMRP.[705]

The draft DMRP prefers the full pit lake for "passive post closure management",[706] yet that pit lake needs perpetual top-up and gate operation [203], [205]. No water balance or water quality modelling was run for any other landform. The intermediate lake the Technical Reference Group asked about was not analysed further.

The State's rehabilitation authority put equilibrium far lower. The MLRA placed hydrogeological equilibrium, where "No surface water inflows are required to maintain this balance", at about +16 to +29 m AHD, 16 to 29 m below the proposed pit lake. It recommended study of those levels for their potential "minimisation of surface water use for mine rehabilitation over the long-term", while noting their "long-term management costs and increased residual risks".[707] The draft DMRP adopts the MLRA's definition of equilibrium but not its level.[708] FoGL requests that the EES report that trade-off, and that the top-up the chosen level needs be secured before approval [231].

188. The fill can pause at an intermediate level. The MLRA, then an independent statutory authority, identified intermediate reference levels as points at which "decisions about future fill can be made". Its reason was uncertainty about the long-term availability of local surface water: "there may be a requirement to stop filling at a future point in time before a full lake has been achieved".[709] The EES does not refer to the Authority's 2022 Hazelwood Rehabilitation Investigation Report. FoGL relies on it only for the proposition that filling can pause, not that the pit lake should stop. The Authority was abolished in 2026, and its functions passed to the Crown and the Department Head.

The report treats intermediate levels as manageable under active depressurisation and landform management, with "a low risk of batter failure if all ground controls are in place and working".[710] That is how the void has been managed since 2017. DEECA's stability criteria for the other two mines anticipate an interruption: a minimum factor of safety of 1.5 during filling "provided for a level of stability that if there was an interruption to water supply, it would be adequate to maintain stability".[711] FoGL requests that the 2024 GHD "Critical Pool" and "Minimum" Lake Level Stability Assessment listed in the draft DMRP be produced.[712]

If the pit lake can be held safely at an intermediate level, the fill can stop drawing on Moondarra in drought and wait. The EES's own no-project baseline holds the pit lake at RL -7 m by pumping indefinitely.[713] A drought pause is the protection the LVRRS conditions give Yallourn and Loy Yang and that Hazelwood lacks (Part B). The drought plan that should provide it is unwritten and has no trigger. State policy anticipates manufactured water "as a contingency under a dry climate scenario or drought conditions".[714] The State's working analysis warned of "a high degree of uncertainty that a rehabilitated landforms can be achieved if relying on water from the Latrobe River system".[715]

What the fast fill buys

[705] Department of Energy, Environment and Climate Action 2025, *Alternative and contingency rehabilitation options*, pp. 3, 25.
[706] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 6, p. 1.
[707] Mine Land Rehabilitation Authority 2022, *Hazelwood Rehabilitation Investigation Report*, pp. viii, 44, 47.
[708] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 15, p. 6.
[709] Mine Land Rehabilitation Authority 2022, *Hazelwood Rehabilitation Investigation Report*, pp. vii, 34.
[710] Ibid., p. 38.
[711] Department of Energy, Environment and Climate Action 2025, *Alternative and contingency rehabilitation options*, p. 5.
[712] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 12, Table 12.2.
[713] ENGIE Hazelwood 2026, *Attachment IV*, p. 20.
[714] Department of Energy, Environment and Climate Action 2026, *Latrobe Valley Regional Rehabilitation Strategy (webpage)*.
[715] Department of Energy, Environment and Climate Action 2024, *Freedom of information release 5995*; released as "unapproved interim working draft analysis".

189. The case for the fast fill assumes an uninterrupted fill from 2026. The proponent prefers it because Hazelwood would finish "before filling of Loy Yang commences",[716] and because a shorter fill is less likely to coincide with drought. Both assume a start date that events have overtaken, in a fill never modelled with interruptions [56]. Technical Report D (catchments, rivers and wetlands) finds the fast fill lower risk only under the medium climate; under the dry climate, "The slow fill offers advantages".[717]

190. The extra 10 GL/yr buys a few milligrams per litre of pit lake water quality. Fill rate makes "a difference in mean TDS of ~2 to 5 mg/L at the end of the simulation", with similarly small differences for metals. The Morwell connection gives about 15 to 25 mg/L.[718] The IESC strongly recommended against the connection, and found the fast-fill benefit unjustified "given the high risks of impairing ecological resilience".[719]

What FoGL seeks

191. The Terms of Reference direct the IAC to the acceptability of the connected and unconnected scenarios (cl 10(d)). FoGL puts the combined option not as a further alternative but as a feasible modification to the design and management of the project (cl 28(d)), and seeks a direction that the proponent:

- (a) score, on the same sixteen criteria, the combined alternative described at [186];
- (b) re-score Ecology and Surface water resources for every alternative against the criteria as defined, including the downstream effects of the take, rather than assuming none because the water is within an existing entitlement;
- (c) report the ranking with ecology and surface water resources each weighted above one sixteenth;
- (d) report the ecological difference between the combined alternative and the preferred option on the State's wetland metrics (Table 2), not on analysis scores alone; and
- (e) state the maximum period the pit lake can safely be held in each level band during filling, so that a rule pausing the Moondarra take in drought can be written into the fill plan before approval.

192. If approval is nonetheless given, the take, fill rate and top-up source should be the subject of the measures and conditions in Part H ([222]; conditions 1, 5 and 8).

Part G: Mitigation, monitoring and the DMRP

Finding sought. The conclusion of no material impact on MNES depends on measures outside the proponent's control, monitoring stops at the pit, and the pit lake's perpetual obligations are neither costed nor secured ([211](k), (l); Points 8 and 14; the complementary measures are at D5; [223]; condition 5). Headline issues 2 and 5.

In short: the take is mitigated by a contract, the drought plan is unwritten, monitoring stops at the pit, and the conclusion of no material impact on MNES depends on others.

The take is mitigated by a contract

193. The only measure governing the take is a private supply agreement. The EES's sole measure on the take itself is compliance with the Gippsland Water agreement, whose protective content is that other contracted users are served first [33], [35]. Chapter 25 says it also lets "residential users and the environment" be prioritised.[720] The clause has not been exhibited, so

[716] ENGIE Hazelwood 2026, *Attachment IV*, p. 37.
[717] ENGIE Hazelwood 2026, *Technical Report D*, pp. 234, 258.
[718] ENGIE Hazelwood 2026, *Technical Report C1*, pp. 142, 140.
[719] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, paras 7, 40; para 24.
[720] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-37.

neither account can be tested. The agreement is "valid until 2035".[721] Chapter 11's conclusion that the Tyers' existing stresses "would not be exacerbated" depends on supply being "reduced or suspended".[722] That decision "would be made by Gippsland Water", not the proponent.[723]

194. Hazelwood's mitigation contains none of the protections the State applies to the other mines. For Loy Yang the State has set out what those protections look like, and Yallourn has applied for an entitlement of its own [30], [32]. A private agreement between two commercial parties is not a condition the Minister for Water can enforce or the public can see [35].

195. The EES cannot decide whether the take's effect on Lake Wellington is minor or permanent. Technical Report D (catchments, rivers and wetlands) proposes no mitigation because the effects of the fast fill and connected scenario on Lake Wellington "are beneficial or minor".[724] Chapter 25 relies on the supply agreement and a drought fill plan to address the same effect. It accepts that salinisation through reduced flushing "would be a permanent impact":[725] about 0.67 ppt on Technical Report D's modelling.[726]

The drought plan does not yet exist

196. The drought plan meant to protect the river is unwritten and has no trigger. The "pit fill management plan" is still to be prepared:[727]

- It is to be "consistent with the existing commercial agreement to reduce demand during drought conditions", the agreement that protects other users, not the environment [33].
- It would explore "increased groundwater usage (within the limits of the relevant groundwater licence)", though the licence has no room for it [45].
- Its trigger was removed rather than defined. The IESC recorded the earlier rule, which reduced supply after "several continuous years of inflow less than 40% of baseline and without a spill from Moondarra Reservoir", and asked for "several" to be defined.[728] Technical Report D says the operating rules "can be refined with further modelling and analysis".[729] They have not been.
- It has been promised since 2021. The EES referral then envisaged adaptive management "to maintain flows at levels required to maintain environmental values",[730] and the 2022 referral promised it again.

197. A drought pause is feasible, so the fill rule can be written now. The State's rehabilitation authority found the pit lake can be held at intermediate levels under active management [188], and the EES itself relies on supply being reduced or suspended in drought [193]. The rule should be fixed before approval, not after.

Monitoring stops at the pit

198. All the river and wetland monitoring sits at or beside the site. Technical Report D's eight measures cover:

Monitored	Not monitored
Pit lake gates and water quality; the inflow structure; the Morwell River upstream of the inlet; fish within the lake; the Morwell River Southern Wetlands; the cooling pond works; lake-edge erosion; boating	The Tyers below Moondarra; the Latrobe at Rosedale and the Swing Bridge; Lake Wellington; every wetland of the Ramsar site

[721] ENGIE Hazelwood 2026, *Technical Report B*, p. 56.
[722] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, pp. 11-2, 11-51.
[723] ENGIE Hazelwood 2026, *Attachment VI*, p. 14.
[724] ENGIE Hazelwood 2026, *Technical Report D*, p. 236.
[725] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-14.
[726] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.2, p. 4.
[727] Ibid., mitigation measure MM1, p. 272.
[728] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 25c.
[729] ENGIE Hazelwood 2026, *Technical Report D*, p. 9.
[730] ENGIE Hazelwood 2021, *Referral 2021-R06*, PDF p. 42.

The places left unmonitored are where the downstream effects the EES predicts fall, and the draft DMRP adds none of them:

- Its post-closure program has no river or wetland monitoring.
- It marks pit lake water quality monitoring and model validation "No" after closure, leaving a general sampling regime the risk register calls "less rigorous".[731]
- It marks pit lake level and stream flow monitoring "No",[732] though holding the pit lake at RL +45 m is a critical control [205].
- It proposes that monitoring "cease" once risks are reduced so far as is reasonably practicable.[733]

199. The State already imposes the regional monitoring FoGL seeks, but only for groundwater. Hazelwood's groundwater licence requires a regional monitoring program of a scope set by the Minister, with jointly owned data and remedial measures in the rehabilitation plan. The Minister may do the work and recover the cost if the licensee fails to report. Nothing equivalent applies to the river. Technical Report D's scoping table requires monitoring "structured to enable the evaluation of cumulative impacts" at the Tanjil below Blue Rock and the Latrobe at Yallourn Weir. Yet the same page calls regional monitoring "beyond the control of Engie Hazelwood".[734]

200. Existing monitoring could not detect the predicted effect. EPA's sampling of the Lakes was cut to alternate months from June 2025, against the monthly frequency its own release describes. Lake Wellington's bottom water has not been sampled since August 2018, nor Lake Reeve, inside the Ramsar site, since June 2023 (Annex 1, section 1.7). Even at full strength, the smallest reliably detectable change in Lake Wellington's flow-adjusted salinity between two 12-year periods is about 1.7 to 1.9 PSU. Technical Report D's mean increment is 0.67 ppt (section 1.8). An effect "well within natural variability"[735] will never trigger a response, so protection must act on the flows that cause it, through rules fixed before approval ([223](a), (b)). The record also has gaps that more frequent, better-placed sampling would close: one site per lake, sampled at no consistent state of tide, in a shallow lake that a storm can mix (Annex 1, section 1.1). The incomplete datasets reinforce the need for more monitoring, not less. Bird monitoring is no better placed. The only long-term survey is a volunteer program, which for a third of the species assessed has less than an even chance of detecting a 20 per cent decline over 30 years.[736]

201. No downstream water quality measure states a value. CRMC01 requires "Defined thresholds and triggers", including for PFAS, but defines none.[737] WQMC04 triggers on "the agreed threshold", with no value and no party named.[738] The Scoping Requirements required "specific, measurable, attainable, relevant, time-based indicators for monitoring and thresholds for action".[739] The draft DMRP falls short in three ways:

- its gate test covers only pH, TDS and turbidity [82];
- its monitoring plan points to a table that does not resolve ("Error! Reference source not found");
- its downstream trigger is set for "a specified productive land use".[740]

202. The IESC could not assess the monitoring plans, and the EES defers them. The IESC said it "cannot comment on the adequacy of these plans". It questioned whether long-term monitoring and management are feasible, "especially after the rehabilitated site is relinquished".[741] The

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[731] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 15, p. 17; Chapter 15, p. 15; Appendix I, Risk 29.
[732] Ibid., Chapter 15, pp. 14, 16.
[733] Ibid., Chapter 15, p. 12.
[734] ENGIE Hazelwood 2026, *Technical Report D*, p. 71.
[735] Ibid., p. 204.
[736] Healey, C. 2026, *Wetland Birds in the Gippsland Lakes*, pp. 10, 30-32.
[737] ENGIE Hazelwood 2026, *Technical Report D*, Table 112, p. 276.
[738] ENGIE Hazelwood 2026, *Technical Report C1*, p. 158.
[739] Department of Transport and Planning 2023, *Scoping Requirements*, p. 17.
[740] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Appendix C, pp. 10-12.
[741] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 34; para 37.

response defers both to the DMRP and its working group, treating gate and erosion maintenance as standard activities. The post-rehabilitation groundwater plan is deferred in the same way.[742]

A pit lake that needs top-up water in perpetuity

203. The pit lake needs top-up water in perpetuity, from sources that expire. Once full, it must be held at RL +45 m, a level Chapter 4 calls "critical for counteracting groundwater pressures, preventing geotechnical instability, and mitigating fire risks".[743] In the years it is needed, which is most years, top-up from Moondarra and pumped groundwater averages 2.7 to 8.2 GL. It reaches up to 12.9 GL in a single year in the slow-fill runs, or 11.3 GL for the preferred option under the medium climate.[744] Moondarra is the first purchased source, and M2 groundwater the second, up to 5 GL in a dry year.[745]

The pit lake is expected to be full at the end of 2035, when the supply agreement, which has no minimum volume, expires. The groundwater licence expires five years earlier [48]. That is a permanent stability requirement with no secured source (Figure 6).

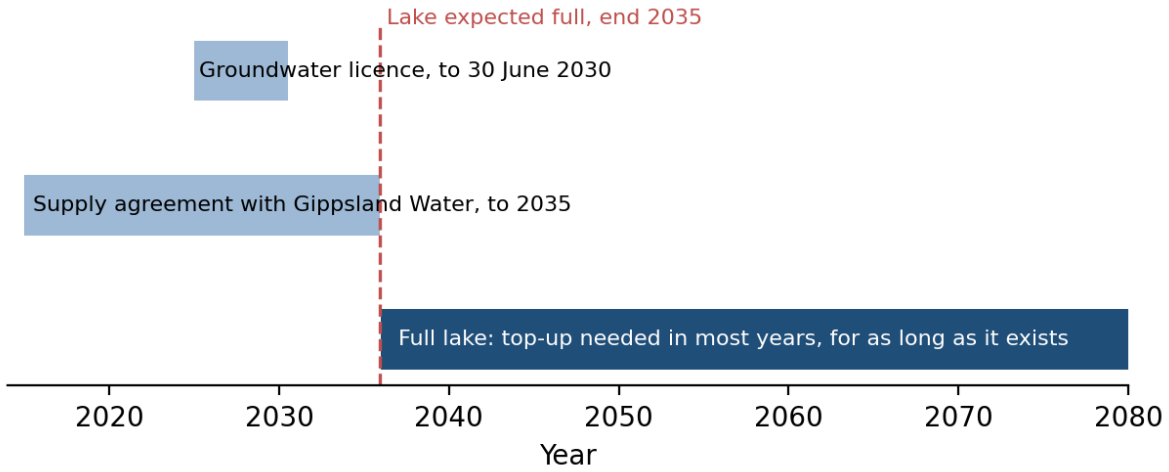


Figure 6. The lake outlives every instrument that supplies it. The groundwater licence expires on 30 June 2030 and the supply agreement in 2035, when the lake is expected to be full; top-up continues for as long as the lake exists [48], [203].

204. Comparing the top-up with the baseline compares two perpetual top-ups. Chapter 11 says the top-up "would involve less water use than under the baseline conditions".[746] But that baseline is itself a full pit lake topped up with 5 GL/yr indefinitely.[747] The comparison is not between the project and none.

205. The "passive" pit lake depends on active controls the draft DMRP has not rated. The draft DMRP calls the full pit lake the preferred landform for "passive post closure management", yet says its inlet and outlet control "will require active management and maintenance into perpetuity". Its critical control "Maintain lake level RL+45m" is "Not Rated".[748] Pit lake level monitoring stops at closure, though top-up is triggered at RL +44.5 m. The plan defines equilibrium as a state in which "surface water inflows are not required",[749] which the top-up regime never reaches. The MLRA put

[742] Ibid., para 10.
[743] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-22.
[744] Ibid., Chapter 10, p. 10-22; ENGIE Hazelwood 2026, *Technical Report C1*, p. 116.
ENGIE Hazelwood 2026, *Attachment IV*, p. 25; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-21; [48].
[746] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-30.
ENGIE Hazelwood 2026, *Attachment IV*, p. 19; [24].
[748] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 6, p. 1; Chapter 6, p. 13; Chapter 14, p. 5.
[749] Ibid., Appendix C, WQMC02, p. 10; Chapter 15, p. 6.

that state at about +16 to +29 m AHD,[750] and warned that even a full pit lake may need continuous groundwater controls on some batters.[751] Top-up requirements also "increase with time".[752]

There are two possibilities, and neither supports an unconditioned take:

- **If top-up is a stability requirement,** the pit lake depends in perpetuity on a supply that has not been secured [203].
- **If it is not,** it can be curtailed in drought like the other mines' take. The State's working analysis for Yallourn and Loy Yang found that for a full fill "a 10 year drought has generally limited impact on the PoF if groundwater gradients increase".[753]

FoGL asks whether GHD's 2024 stability assessment [188] tested the equivalent case for Hazelwood.

206. Once the pit lake is full, the DMRP governs, and its scheme leaves the perpetual costs unsecured. Parliament has extended MIN5004 only until the plan takes effect, and barred mining in the meantime (MRSD Act, s 121C, inserted in 2026). The obligations then bind the "former holder" of the licence (ss 78(1)(a), 84AZS(1)). Four features bear on the pit lake's perpetual needs:

- **The risk assessment stops at the boundary.** The statutory risk factors refer to factors "within the declared mine land" (s 84AZU(3)(e)), and the draft DMRP "only assesses risks where pathways are within the mining license (MIN5004) area".[754] The Ministerial Guidelines require a DMRP risk assessment to identify "all hazards (sources), pathways and receptors... including cumulative risks where relevant".[755] FoGL requests that it reach the river, the wetlands and the Lakes; until it does, their protection must come from the instruments that follow this EES.
- **The post-closure plan allocates the obligations** among the licensee, the Department Head and the landowner (s 84AZU(3)(c)).
    - If the Department Head carries them, the cost falls on the Declared Mine Fund (s 84AZZI(1)(a)), to which the proponent's closure contribution is not yet set (s 84AZZB(3)(c), (d)).
    - If the licensee carries them, the 2026 trailing liabilities scheme lets the Minister direct its related bodies corporate to pay (ss 84AZZN, 84AZZQ).
- **The Water Minister must be consulted** on the closure criteria, and on whether they have been met (ss 84AZV(1)(b)(vii), 84AZZ(1)(b)(vii)).
- **The perpetual obligations have not been costed.**
    - The draft DMRP lists maintaining the pit lake level through top-up as a post-closure cost "not currently known". It illustrates a perpetual annuity of $150,000 to $250,000 a year, a lump sum of $6.15 million to $10.2 million.[756]
    - Even at the $230/ML the State charges for Loy Yang's water, a price FoGL does not accept, 2.7 to 8.2 GL/yr of top-up alone would cost about $0.6 million to $1.9 million a year, before gate operation or monitoring.
    - The adverse-event component of the fund is benchmarked against natural disasters on "undisturbed landforms",[757] which does not reach a levee, inlet or outlet failure.
    - The plan names the MLRA as interim manager after relinquishment,[758] an authority abolished in 2026 [188].

Mine Land Rehabilitation Authority 2022, *Hazelwood Rehabilitation Investigation Report*, p. 44; [187].
[751] Ibid., p. 26.
[752] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 10, p. 10-22.
[753] Department of Energy, Environment and Climate Action 2024, *Freedom of information release 5995*; released as "unapproved interim working draft analysis"; not specific to Hazelwood.
[754] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 13, p. 2.
[755] Department of Energy, Environment and Climate Action 2025, *Ministerial Guidelines for the preparation of Declared Mine Rehabilitation Plans*, p. 15.
[756] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Appendix C, p. 27; Chapter 17, p. 4.
[757] Ibid., Chapter 17, p. 9.
[758] Ibid., Chapter 6, Table 6.1, p. 12; Chapter 17, p. 9.

- WGCMA's staff and expert panel expect that, even when full, "the evaporative losses, water quality and geomorphological risks from the pit lakes will need to be managed carefully in perpetuity".[759]
- The State has announced a fund, "generated by the revenue from water used for rehabilitation", to support the community through the transition, "including investment in waterway health".[760] Nothing in the EES shows Hazelwood's water, supplied under a commercial agreement with Gippsland Water [33], contributing to it.

Completion criteria should include downstream outcomes: drying duration at the lower Latrobe wetlands, Lake Wellington flushing and salinity, and contaminant levels at Heart Morass. Reaching RL +45 m, or completing a set monitoring period, should not count as closure. The IAC does not examine the draft DMRP,[761] but it can find that acceptable outcomes depend on how these obligations are allocated and secured (cl 9(a)(v), 28(b), (c), (f)), and recommend controls on them (cl 28(g)). Commonwealth approvals under the water trigger have typically conditioned the "management and monitoring of the final void of open cut mines".[762]

207. The handover timetable is short against the pit lake's own processes. The draft DMRP proposes maintaining RL +45 m "for 5-10 years" before relinquishment, and costs post-relinquishment monitoring for "a period of 10 years".[763] The pit lake's own processes run far longer:

- floor heave is managed "over a 200-year recovery horizon";[764]
- groundwater takes about 200 years to stabilise;[765]
- pit lake metals are still rising when the 100-year model ends.[766]

Under the water trigger, the significance of impacts "must be assessed in both the short and the long term", and the long term "may be beyond the life of the action".[767]

The A$289 million bond is to be "returned in full to the licence holder" at closure.[768] The licence holder's owners, ENGIE S.A. (72 per cent) and Mitsui & Co. (28 per cent),[769] are the related bodies the trailing liabilities scheme reaches. The closure criteria test the pit lake against recreational, drinking-water and livestock guidelines and against the model ([82]), not against the condition of the river, the wetlands or the Lakes.

208. The unconnected option depends on the Morwell River Diversion holding indefinitely. Its 1 in 10,000-year design event falls to about 1 in 4,273 under climate change.[770] MIN5004, which Chapter 5 said would expire in September 2026, has been extended by statute until the DMRP takes effect (s 121C). River capture is not theoretical:

- **2012.** On 6 June 2012 the diversion through the Yallourn mine failed. Under EPA emergency approval, "an additional 84 Mm^3 of floodwater was discharged to river from 6 June 2012 to 2 Feb 2013", with 30 Mm³ more after the mine flooded again in June 2013.[771] The EPA reported raised turbidity in the Latrobe, with impacts "being monitored for the river and Gippsland lakes".[772]

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[759] Goode, A. et al. 2026, *Implications of the clean energy transition for waterways*, p. 6.
[760] Ibid., p. 6.
[761] Minister for Planning 2026, *Hazelwood Rehabilitation Project Inquiry and Advisory Committee: Terms of Reference*, cl 8.
[762] Hunter, S. 2017, *Independent Review of the Water Trigger Legislation*, p. 28.
[763] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 15, p. 10; Chapter 10, criterion 68, p. 7.
[764] Ibid., Chapter 9, p. 3.
[765] ENGIE Hazelwood 2026, *Technical Report E*, p. 45.
[766] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 10, p. 10-31.
[767] Department of Climate Change, Energy, the Environment and Water 2022, *Significant Impact Guidelines 1.3*, s 4.5.2, p. 14.
[768] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 17, pp. 2, 7.
[769] Ibid., Chapter 17, p. 2.
[770] ENGIE Hazelwood 2026, *Technical Report D*, p. 241.
[771] EnergyAustralia 2014, *Yallourn Social and Environmental Performance Summary 2014*.
[772] Environment Protection Authority Victoria 2012, *Bulletin on the Yallourn mine emergency discharge (publication 1494)*.

- **2021.** Cracking in the same diversion led to a state energy emergency and further discharges under EPA approval.

209. The causes of Yallourn's 2012 failure bear directly on Hazelwood's levees and gated works. The review prepared for the Department of Primary Industries found these causes:

- dispersive clays;
- flood-plain cracking;
- a filter that was too coarse and wrongly placed;
- "sole reliance" on a single membrane seal;
- a design that assumed flood-plain wetting "of short durations only", when floods "could be at least 48 hours".

Its first lesson was that "If a structure has to retain water, it should be designed as a water retaining structure". It warned that "It is possible for a failure to initiate and propagate during a single flood", and that relying on visual inspection after a flood is "un-conservative".

There are other precedents. In 2007 a Yallourn batter failure "moved a large block of coal into the mine and diverted the Latrobe River".[773] At Hazelwood, a sinkhole in the Morwell Main Drain caused movement that "manifested as significant surface cracks in the Princes Freeway".[774]

The draft DMRP's risk register lists failure of the inlet, the levees and the flood diversion. It has no risk event for uncontrolled capture of the Morwell River by the pit, the IESC's central concern.[775] Its post-closure controls for these works are periodic inspection only. Yet with the gates closed and the pit lake above RL +45 m as a "retarding basin",[776] the Northern Protection Levee and outlet works would retain water for long periods.

What FoGL seeks

210. FoGL recognises that the IAC does not examine the draft DMRP. Its requests on mitigation and monitoring are set out in Part H: a drought pause and a combined supply [222], and an Environmental Management Framework with downstream monitoring, a drought trigger, gate criteria, independent audit and secured funding for the perpetual obligations ([223]; conditions 4, 5 and 9).

Part H: Findings, directions and recommendations sought

In this Part. The findings FoGL seeks [211], [212], [224], directions [214], [215], Water Act recommendations [216] to [221], measures and modifications [222], the Environmental Management Framework [223] the conditions [227] to [235], and the fallback controls if the action is approved [236], [237].

This Part follows the Terms of Reference: the findings the IAC must make (cl 4, 28(b)), the directions it may give (cl 20), and the recommendations its report must contain (cl 28(c) to (g), cl 29).

Findings sought (cl 4, 28(b))

211. FoGL submits that the IAC should find, under clause 28(b) of its Terms of Reference, that the evidence before it leaves the following matters unresolved. Each goes to the information on which a finding of acceptability depends, not to how the EES was prepared (cl 7):

- (a) The EES assesses the increment over a baseline that already contains the take. The first 20 GL/yr has not been assessed as an impact in the EES or in any study it relies on (Part B).

[773] Mine Land Rehabilitation Authority 2022, *Hazelwood Rehabilitation Investigation Report*, p. 52; see also Department of Energy, Environment and Climate Action 2025, *Alternative and contingency rehabilitation options*, p. 30; ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 11, p. 5.
[774] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 8, p. 10.
[775] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, paras 29, 39.
[776] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-52.

- (b) The take is not bound by the conditions the State applies to the other two mines. No approval listed in the Terms of Reference governs it; its only mitigation is a private agreement with no minimum volume, which expires in 2035 (Part B; [193] to [195]).
- (c) High-climate results were produced but excluded from the conclusions, and the post-1997 scenario the 2020 guidelines recommend was not run for the rivers at all [49], [50]. Supply reliability is stated inconsistently, and neither an interrupted fill nor the 35-year worst-case fill has been modelled (Part C, [39] to [57]).
- (d) The rivers model assumes 15 GL/yr of environmental water as though the State's returns were delivered: about 9.7 GL/yr more than has been allocated, and a return the proponent's water report says the project may impede (Part C, [62] to [64]).
- (e) Downstream effects are not reported on the State's own wetland metrics, and the EES's conclusions on the Tyers are internally inconsistent (Part C, [58] to [61]).
- (f) The connected option takes water Technical Report D (catchments, rivers and wetlands) itself describes as above the Latrobe's permissible consumptive volume and reserved for the environment. Its downstream effect has not been assessed, and the proposed offset has not been designed ([65] to [70] and [149] to [153]).
- (g) Cumulative effects were modelled, then removed from the reported results, and the other mines were modelled below their figures (Part C, [71] to [75]).
- (h) The connected pit lake manages its water quality by discharging solutes to the Morwell River. No discharge criteria for metals or nutrients are stated, and the nitrogen the pit lake would export is not risk-assessed, and pit lake copper is predicted to reach about 33 times the aquatic guideline (Part C, [76] to [85]).
- (i) The Ramsar site was assessed only against its 2010 limits, which the State has since revised. Bittern critical habitat and the listed migratory shorebirds, including species listed as threatened years before the referral, were not assessed at the site. The sustainable-level test was not applied (Part D).
- (j) The alternatives analysis scored downstream ecology as nil. Recycled water from the Gippsland Water Factory was not beaten on cost, and a combined option was never scored (Part F).
- (k) The conclusion of no material impact on MNES depends on measures outside the proponent's control, and monitoring stops at the pit (D5; Part G).
- (l) The threat of mine rehabilitation to the Ramsar site, identified by the site's own management plan and deferred to this process, has not been assessed here either (D5, [153]).
- (m) The EES has not shown that the findings on which the Commonwealth declared this a controlled action in February 2023, including that a substantial and measurable change in the hydrological regime and physico-chemical status of the Gippsland Lakes is likely, do not hold (Part D, [88]).
- (n) The groundwater the fast fill, the drought measure and the top-up rely on is not authorised by the renewed licence, which excludes extraction to create a pit lake beyond safe and stable levels (Part C, [46], [47]).

- (o) The take the EES treats as baseline is itself filling the void, at a rate that would fill it in about 15 years, under arrangements the EES says do not determine the final outcome [24], [25].

212. The EES lacks information the Scoping Requirements identified as necessary. The procedures required its studies to be "adequate to inform a robust assessment of the significance and acceptability of its potential environmental effects".[777] FoGL submits the IAC cannot find the effects acceptable without the following, which go to evidence under clause 28(b), not to process (cl 7):

- the worst case where the effectiveness of mitigation is uncertain;

[777] Department of Transport and Planning 2023, *Scoping Requirements*, Appendix A, item iv, p. 25; see also Minister for Planning 2026, *Terms of Reference*, Appendix 2, iv.

- a fill of up to 35 years, within the project as scoped and as the Minister described it;[778]
- cumulative effects with the closure of Yallourn and Loy Yang, under future climate scenarios, and with the threatening processes it was required to describe, including the flow-regime and wetland-loss processes on Victoria's list [21];
- modelling "with the current allocations, extractions and uses" of water, including environmental flows;[779]
- feasible alternatives and modifications, including different sources and timing of filling;
- Water Act decision-making on the flood flows;
- the current Ramsar Management Plan and Ecological Character Description;
- justification against the mitigation hierarchy, and evidence for the offset relied on; and
- downstream monitoring with thresholds for action.

213. FoGL asks the IAC to obtain the information at [214] before the Hearing; it does not seek to delay the Hearing. If it is not provided, FoGL submits that the IAC should find that the acceptability of the connected scenario has not been demonstrated and should recommend against it, as the IESC did,[780] and should recommend the measures, conditions and controls below for the unconnected scenario. If the IAC does not recommend the cap in condition 1 [227], FoGL asks it to recommend at least the slow fill, unconnected, with the drought pause in condition 1: the option nearest the cap that the EES has assessed.

Directions and further information (cl 20)

214. FoGL seeks a direction, at the Directions Hearing, that the proponent provide the following before the Hearing (cl 20; the proponent is to provide technical support to the IAC, cl 40). The Directions Hearing is on 26 November 2026, and the Hearing commences on 8 February 2027, after accompanied site inspections on 1 and 2 February.[781] FoGL's letter of 11 November 2026 asked the IAC to request six of these first: the full take as one further run with no project take (items 1 and 3), the cumulative scenario (item 5), the survey and habitat data, the Grayling assessment and the flow assessment for the wetland species (items 6, 13 and 14), the basis of "less than six months" (Q9), the supply agreement's reduction clause and annual supply to the site since 2017 (item 10), and the interrupted fill with GHD's study (items 2 and 10). Each goes to an impact the Commonwealth Minister must consider before deciding (ss 82, 136(1)(a)), including indirect consequences downstream (s 527E; [14]) and, for the water trigger, impact "when considered with other developments" (s 528; [16]). The Scoping Requirements asked the EES for "key information that will be required to support statutory decision-making";[782] this is that information. Each draws on existing material or models. Where it is not provided, the uncertainty it leaves is no reason to defer the protective conditions at [227] to [235] (s 391). The items are:

1. **The full take against current conditions**, on the State's wetland metrics, under medium, high and post-1997 runoff behaviour, with estuary compliance retested against the published Alluvium 2020 thresholds; and, as a stress test, the high scenario continued past 2065 rather than held flat [57].[783]
2. **An interrupted fill**, including the 35-year worst case, with groundwater at the licensed 18.4 GL/yr and Gippsland Water's reliability figures, with a drought stress test running the three driest Millennium Drought years back-to-back [57].[784]
3. **The dry results in the residual impact assessment**, assuming the worst case where mitigation is uncertain, and with the Tyers assessed as its reach.

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[778] Department of Transport and Planning 2023, *Scoping Requirements*, p. 4; Minister for Planning 2022, *Reasons for Decision, referral 2021-R06*.
[779] Department of Transport and Planning 2023, *Scoping Requirements*, p. 16.
[780] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, paras 7, 40; Minister for Planning 2026, *Terms of Reference*, cl 10(d).
[781] Hazelwood Rehabilitation Project Inquiry and Advisory Committee 2026, letter to submitters, 6 November 2026, Attachment 1; Minister for Planning 2026, *Terms of Reference*, cl 33, 34.
[782] Department of Transport and Planning 2023, *Scoping Requirements*, p. 9.
Department of Transport and Planning 2023, *Scoping Requirements*, pp. 11, 17; Table 2; [58], [59].
[784] Ibid., pp. 4, 12.

4. **A rerun with the environmental water actually allocated**, not counting the Gunaikurnai entitlement as environmental water unless GLaWAC so decides.
5. **A cumulative scenario** against current conditions, with the gazetted Loy Yang volume, Yallourn's own estimates, the combined permanent top-up of all three pit lakes, and effects on the Tanjil, including on Traditional Owner values.
6. **The Ramsar site against its current limits**: drying-duration probabilities against the 36 and 60 month limits; and significant impact assessments at the site for the bittern, the threatened species listed before 2023, and the listed migratory shorebirds [130], [144].[785] Native fish assessed across the Ramsar plan's five life-history groups, with the take and flood harvesting set against the months in which each group migrates and spawns, including the eels' journeys to and from the sea [103]. Flow results reported as the change in events per year, not runs of years without an event, at Thoms Bridge, Rosedale, Kilmany South and the Swing Bridge, the last against the estuary's own recommendations rather than those for Reach 5 [60], for the February to May and spring freshes, the estuary freshes and flows above 4,100 ML/day, under the medium and high climate runs [60]. Baseflow compliance reported as the share of days meeting each recommendation [117].
7. **The loss of overbank flows and Lake Wellington inflow** from flood harvesting.
8. **Discharge criteria and downstream trigger values. The statutory audits relied on but not exhibited: the August 2024** EPA risk-of-harm audit (apparently the "Environmental Audit: Mine Void - Part 2" listed in the draft DMRP)[786] and the PFAS audit relied on at Chapter 25, unless Technical Report F reports it in full. The assessment of contaminant movement through the groundwater system on reconnection ([159](e)). Water quality modelling extended until concentrations stabilise, with mercury included. An assessment of the nitrogen and phosphorus loads the connected pit lake would export to Lake Wellington, treating nitrogen as the nutrient that generally limits algal growth there [79]. A site-specific ecological risk assessment for Heart Morass, including food-chain exposure for waterbirds and fish. An assessment of contaminant accumulation in the sediments of Lake Wellington and the lower Latrobe wetlands, and of acid sulfate soil exposure under the drying durations sought above, the gap the proponent's peer reviewer identified [81].
9. **The combined supply modification** modelled and scored; ecology and surface water rescored for every alternative against the criteria as written, with a weighting sensitivity; and the safe holding period for each pit lake level band.
10. **Documents**:
    - the supply agreement's clause on reduction or suspension of supply;
    - the explanatory note that accompanied the 1997 conversion order, and Gippsland Water's annual supply to the site since 2017 (Q11);
    - any study assessing the first 20 GL/yr as an impact;
    - the Lake Hazelwood Operating Plan said to form part of the draft DMRP, and the Lake Level Management Plan that its closure criterion 34 relies on;
    - GHD (2024) "Critical Pool" and "Minimum" Lake Level Stability Assessment; Senversa (2024) Solute Transport Screening Modelling of the Hazelwood Ash Retention Area; and MLC (2017) Industry Practice Review of pit lake closure as riverine flow-through systems;[787] and
    - any assessment of the 2022 flood diversion's downstream effects [66].
11. **The groundwater authorisation** relied on for filling, for the drought measure and for top-up, given condition 3 of the renewed licence.
12. **The void now**: the current level, the volume retained, and the authority on which surface water continues to be retained above RL -7 m pending a decision [25].
13. **Survey and habitat data**: any survey data for the Australasian Bittern and Latham's Snipe in the works area, the Cooling Pond and the Morwell River (Southern) Wetland, or a statement

[785] Ibid., pp. 13, 19-20.
[786] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 12, Table 12.2, item 96.
[787] Ibid., Chapter 12, Table 12.2.

that there is none; and the area of habitat removed or degraded for each listed species, including the Cooling Pond marsh [137].

14. **The Grayling**: a significance assessment for the lower Latrobe population of the Australian Grayling, which the 2008 recovery plan treats as important, against the flow changes at [60], with cumulative assessments for the bittern and the listed fish [134], [138].
15. **The offset inputs**: the Native Vegetation Removal report, the habitat hectare scores, the habitat importance check for the four FFG-listed species, and the CM1 volume by year under the medium and high climate scenarios [155].

215. FoGL also asks the IAC to include any of the questions in Part I it finds useful in its own request for information, in particular Q5 (the void now) and Q15 (the drought trigger); it will put any left unanswered to the relevant witness at the Hearing. Its letter also asks the IAC to direct that the proponent's witness on catchments, rivers and wetlands respond to Annex 1, sections 1.4 and 1.8, stating whether they agree and, if not, why, and that the salinity calculation and the full take be among the topics of any meeting of surface water experts, and to include the Tyers below Moondarra, the Swing Bridge, the lower Latrobe wetlands and Lake Wellington in its accompanied site inspection; the locations the proponent has proposed are all on the mine site. FoGL will nominate its locations by 11 January 2027.

The Water Act approvals

216. FoGL seeks a recommendation that no licence be granted to take the Morwell flood flows. The approvals the project requires include "A licence to take and use water from a waterway pursuant to the Water Act 1989".[788] The Act speaks directly to these flows:

- **What the water is.** Technical Report D describes it as "above cap", beyond the Latrobe's Permissible Consumptive Volume, and "currently allocated to the environment".[789]
- **The environmental water reserve.** The reserve is all water set aside for the environment, including through "any other provision of this Act".[790] That covers water excluded from consumptive take by a permissible consumptive volume declared under s 22A.
- **The reserve objective.** The reserve is to be maintained "to preserve the environmental values and health of water ecosystems, including their biodiversity, ecological functioning and quality of water and the other uses that depend on environmental condition".[791]
- **The refusal test.** The Minister must refuse a s 51 licence if the allocation "will or may result in the permissible consumptive volume for the area... being exceeded", or is likely to have an adverse effect on maintaining the reserve in accordance with that objective.[792]

Both limbs are engaged.

217. The proponent's own description of the water compels the Minister's opinion under s 55(2B).

- A permissible consumptive volume exists for the Latrobe River Basin: 275,193 ML.[793] The Minister has begun reducing it to the power generators' recent average take [29]. A new licence for above-cap water would run against that direction.
- The Minister's take and use licence policies bar any new licence that would take the total above a permissible consumptive volume. In southern Victoria they bar new all-year licences except by transfer, noting that "most of the southern river basins have no room left under their PCVs".[794]

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[788] Minister for Planning 2026, *Terms of Reference*, Appendix 1, cl 53(d).
ENGIE Hazelwood 2026, *Technical Report D*, p. 73; [65].
[790] *Water Act 1989* (Vic), s 4A(1).
[791] Ibid., s 4B.
[792] Ibid., s 55(2B).
[793] Minister for Water 2024, *Permissible Consumptive Volume Surface Water Order 2024*.
[794] Minister for Water 2014, *Policies for Managing Take and Use Licences*, cl 7(3).

- The exception for a licence whose water is all returned to the waterway does not fit. Technical Report D says the top-up protocol returns "most of the flow diverted",[795] but the pit lake evaporates about 12 to 13 GL a year,[796] so the take is consumptive.
- The only previous authority for this kind of take, the 2021 emergency licence, has expired and cannot be renewed for filling [66].
- In any event, the Minister must have regard to the s 40(1)(b) to (m) matters, including the reserve and "the need to protect the environment".[797]

218. The proponent cannot take the bulk entitlement route that Loy Yang took and Yallourn is taking.

- **Who may apply.** Only an "Authority" may apply for a bulk entitlement. A generator qualifies only as "a generation company",[798] defined as "a person who is the holder of a licence to generate electricity for supply or sale".[799]
- **The proponent's licence is gone.** According to ENGIE's disclosure to the Essential Services Commission, the generation licence of the Hazelwood Power Partnership (ABN 40 924 759 557), for which the EES is prepared, was revoked on 28 June 2017.[800] The revocation was required to be gazetted.
- **The site's current licence covers only the battery.** It is held by Hazelwood BESS Project Co Pty Ltd, granted on 10 August 2022 for generation through the 150 MW battery only.[801]

The proponent therefore cannot apply for a bulk entitlement, and the Minister's power to request one and grant it in default (s 47B) does not reach it. If an associated company holding a generation licence applied, the entitlement would sit with the battery company, not with the licensee of MIN5004 who bears the rehabilitation obligations. The Loy Yang conditions would still need to be attached ([222](e)). FoGL requests that the IAC identify which entity would hold any instrument for the take.

This helps explain why DEECA left Hazelwood out of the process applied to the other mines [31], and why Chapter 5 floats "a new category of approval".[802] For the flood flows, the only route the Act offers the proponent is a s 51 licence, to which s 55(2B) applies [216].

219. Any other route meets equivalent tests.

- **A bulk entitlement held by an Authority such as Gippsland Water** may be granted only if the Minister considers the allocation "not likely to have any significant impact" in terms of the s 40 matters. These include the permissible consumptive volume, the environmental water reserve and "the need to protect the environment";[803] Technical Report D sets out the same test.
    - That process allows submissions.
    - It requires regard to this inquiry's findings and submissions.
    - Either House may disallow the Order.
- **An assignment of Gippsland Water's allocation** needs the Minister's approval, given with regard to any adverse effect on the reserve.

FoGL requests that no authorisation be granted for the flood take by any route. It further requests that any "new category of approval"[804] created for it carry tests no weaker than those Parliament has set in ss 42(2) and 55(2B).

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[795] ENGIE Hazelwood 2026, *Technical Report D*, p. 4.
[796] ENGIE Hazelwood 2026, *Technical Report C1*, Table 10-4, p. 115.
[797] *Water Act 1989* (Vic), ss 53(1)(b), 40(1)(d)(iv), 40(1)(g).
[798] Ibid., s 36(1); s 34(1)(c).
[799] *Electricity Industry Act 2000* (Vic), s 3; *Water Act 1989* (Vic), s 3(1).
[800] ENGIE 2022, *Attachment 2J: Associate Licences/Authorisations*.
[801] Essential Services Commission 2022, *Hazelwood BESS Project Co Pty Ltd electricity generation licence: Record of Decision*.
[802] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-11.
[803] *Water Act 1989* (Vic), s 42(2); s 40(1)(ba), (d)(iv), (g).
[804] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-11.

220. FoGL seeks a recommendation for a take rule for the Tyers below Moondarra: a passing flow set on the published environmental flow recommendations, below which no water is supplied for the project. The 2020 flow study recommends baseflows in the lower Tyers of 100 ML/day from December to May and 200 ML/day from June to November;[805] on the EES's own modelling, the fast fill cuts the share of days meeting them from 42.5 to 33.7 per cent and from 23.4 to 19.1 per cent.[806] The State is investigating delivering environmental water to the Latrobe through the Tyers, which "would benefit native in-stream and streamside vegetation and non-migratory fish within the Tyers River".[807] The existing passing-flow conditions on the Moondarra entitlement already form part of the environmental water reserve; FoGL requests that they be set at a level that protects the river in the dry years the project's own modelling identifies. The rule should also respond to spills. Technical Report D accepts that suspending supply until Moondarra spills would bring spills forward, and that spills are "essential for the provision of environmental water".[808] FoGL requests that, in dry sequences, no water be supplied for the project until Moondarra has spilled in that water year. WGCMA notes that passing flow rules "were not originally designed to address environmental water needs, but to ensure sufficient flows for downstream consumptive users".[809]

221. **FoGL seeks a recommendation that the groundwater licence not be varied,** in volume or in purpose, to support the fast fill, a drought fallback or pit lake top-up without assessment. Condition 3 of the renewed licence excludes extraction to create a pit lake beyond safe and stable levels, and Southern Rural Water has determined that any such use requires a separate application.[810] Yet the background to the Terms of Reference (Appendix 1) still lists "Renewal of the groundwater licence" among the required approvals, and the draft DMRP still seeks renewal "to enable filling via groundwater pumping".[811] The approval the fill needs has not been given.

Additional measures and feasible modifications (cl 28(c), (d))

222. **No listed approval governs the Moondarra take.** The IAC can address it through additional measures (cl 28(c)), feasible modifications (cl 28(d)), and controls for MNES (cl 28(g)). FoGL seeks recommendations for:

(a) a cap on the take at Hazelwood's net historic use, unless the State's conditions apply in full (condition 1);

(b) a drought pause, with the pit lake held within a level band the proponent has shown to be safe [188];

(c) environmental water returned first (condition 3), as the Commonwealth's study recommends [64];

(d) a combined supply: the fill at the net-use cap with stability groundwater and manufactured water as a supplement where available, and manufactured water as the top-up source afterwards (conditions 5 and 8), as State policy anticipates [176], [188]; and

(e) a statutory instrument for the take. The proponent cannot hold a bulk entitlement [218], so the instrument must sit with Gippsland Water or with the Minister. The Act offers two routes now:

- **A Gippsland Water bulk entitlement** for supply to mine rehabilitation, carrying the conditions the State applied to Loy Yang. The Minister may request one and, if Gippsland Water does not apply, grant it.
- **An approved assignment** of Gippsland Water's allocation, given with regard to the environmental water reserve.

FoGL does not ask the IAC to choose between them. It seeks only a recommendation that the take above net historic use not proceed until one is in place [32].

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[805] Alluvium 2020, *Latrobe Environmental Water Requirements*, p. 129.
[806] ENGIE Hazelwood 2026, *Technical Report D*, Table 73, p. 185.
[807] Victorian Environmental Water Holder 2026, *Seasonal Watering Plan 2026-27*, pp. 28, 33.
[808] ENGIE Hazelwood 2026, *Technical Report D*, p. 9.
[809] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy*, p. 57.
Minister for Planning 2026, *Terms of Reference*, Appendix 1, cl 53(e); [45] to [48].
[811] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 5, p. 20.

The Environmental Management Framework (cl 28(f))

223. FoGL seeks a recommendation that the Environmental Management Framework include the following. It recognises that the IAC does not examine the draft DMRP (cl 8).

(a) **downstream monitoring**, with trigger values and graded responses, at:

- the Tyers below Moondarra;
- the Latrobe at Rosedale;
- the Swing Bridge (3,200 ML/day);
- the mid-lower Latrobe estuary (mid-water salinity and salt-wedge position from October to December, and how often flows at the Swing Bridge exceed 4,100 ML/day);
- Lake Wellington (the 130 GL/month flushing flow, level and salinity);
- Sale Common, Dowd Morass and Heart Morass (continuous dry duration against the 36 and 60 month limits).

Triggers should be set on flows and flushing rather than on concentrations in the Lakes, which cannot detect a change of the size predicted (Annex 1, section 1.8). EPA's fixed-site sampling of the Lakes, including Lake Wellington bottom water, should be restored to monthly, as the Ramsar plan specifies,[812] for the life of the take, at the proponent's cost (condition 4). Given the limits of the present record (Annex 1, section 1.1), monthly should be the floor: FoGL submits that sampling be at least twice monthly at a consistent state of tide, with more sites in Lake Wellington, depth profiles of salinity, temperature and dissolved oxygen at each site, and event sampling of the Latrobe, Thomson and Avon inflows. Each round should measure total nitrogen, oxidised nitrogen, ammonium, total and filterable reactive phosphorus and chlorophyll-a, because nitrogen generally limits algal growth in the Lakes [79]. Continuous dry-duration monitoring is practical with the loggers the plan already relies on and the Sentinel-2 imagery the Environment Report already uses, and salinity loggers at the wetland inlets would record when river water arrives too saline to use;[813]

(b) a **drought trigger** for the fill, stated now rather than left to a future plan [196], together with the climate contingency Technical Report A (climate change) contemplates if observed climate change "exceeds the range of uncertainty" modelled;[814]

(c) numerical **gate discharge pollutant criteria**, and the maximum pit lake level while water is withheld (condition 9);

(d) an **independent auditor and annual public reporting**, on the model of Gazette S 703, reviewed at each LVRRS review. A community reporting forum should include Traditional Owners, catchment managers and community groups, as FoGL and the Concerned Waterways Alliance sought in their 2025 submissions on the draft plan. The need is concrete: the 2024 Environment Report's "Good" salinity ratings for Lakes Victoria and King rest on a year for which it reported no data, and on the public data both are Poor (Annex 1, section 1.9);

(e) a **regional monitoring program** for the river and wetlands on the model of the one the groundwater licence already imposes for the aquifers: scope set by the Minister, data jointly owned, remedial measures incorporated in the rehabilitation plan, and cost recovery for failure to report, which would also serve WGCMA's aim to "Establish governance, partnerships and monitoring systems" by 2030;[815]

(f) a **responsible entity** and **secured funding** for monitoring, top-up and gate operation after relinquishment. The post-closure plan should place these obligations on the declared mine licensee, so that the trailing liabilities scheme stands behind them, rather than on the Department Head and the Declared Mine Fund [206]. The State has said the costs of manufactured water remain the licensee's obligation during and after rehabilitation [176]. The MLRA expected groundwater controls to weaken after relinquishment, because future landowners would have fewer resources.[816] FoGL

[812] "Monthly and event based", by EPA and DEECA; East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, p. 83.
[813] Ibid.; East Gippsland Catchment Management Authority 2024, *Environment Report 2024*, p. 17.
[814] ENGIE Hazelwood 2026, *Technical Report A*, p. 50.
[815] West Gippsland Catchment Management Authority 2026, *The Latrobe Legacy: Summary Paper*, p. 6.
[816] Mine Land Rehabilitation Authority 2022, *Hazelwood Rehabilitation Investigation Report*, p. 37.

submits that the IAC should find that acceptable outcomes depend on these perpetual obligations being secured (cl 28(b));

(g) a contingency plan for failure of the inlet structure, the levees or the Morwell River Diversion, including discharge quality limits and downstream monitoring for any emergency discharge; inspection and instrument readings during floods, not only after them; and a requirement that any structure retaining pit lake water above RL +45 m be designed and regulated as a water-retaining structure, given the Yallourn events of 2007, 2012 and 2021 [208], [209]; and

(h) periodic re-running of the water quality model against monitoring data, with the results published.

MNES (cl 28(g))

224. FoGL submits that the IAC should make these specific findings under cl 28(g), by controlling provision:

Provision	Finding	Evidence
A water resource (ss 24D, 24E)	(a) The sustainable-level limb of Guidelines 1.3 has not been applied; it should be measured against the 129 GL/yr shortfall, treating the full take as the action (Guidelines 1.3, s 3.2.1 and Example 5)	[92]; [38]
	(b) The EES's flow tests cannot detect fewer flow events, and none is timed to when the site's fish migrate and spawn, though the EES concedes that higher flows at Thoms Bridge become less frequent	[60]; [91]
A Ramsar wetland (ss 16, 17B)	(c) The site is a sensitive environment in the sense of the guidelines: the Commonwealth's study finds its ecological character likely to change as freshwater inflows decline	[87]
	(d) For the hydrological and water quality limbs of Guidelines 1.1, there is a real chance of a substantial and measurable change, including in the duration of flows, which the EES never computed, and in water quality, through salinity and copper; the EES has not demonstrated otherwise; and approval without conditions 1, 4 and 6 would risk a change in the site's ecological character of the kind Australia must report to the Convention under Article 3.2	[122], [123]; [125]
	(e) The site's native fish, for which it is listed under criterion 8, among them the short-finned eel, a species of significance in the Gunaikurnai cultural water objectives, have not been assessed against the flows and salinity their life cycles depend on	[115] to [121]
Listed threatened species (ss 18, 18A)	(f) The bittern's critical habitat at the Ramsar site has not been assessed against the project's flow effects, though its recovery plan, which binds the decision, rates changed water regimes a Very High risk; and on site the EES applied a narrower description of critical habitat than the advice it quotes	[126], [127], [128], [129]; [132], [133]
	(g) The lower Latrobe Grayling, an important population, the Dwarf Galaxias's flood connections, the Australian Painted Snipe and the Growling Grass Frog have not been assessed against the project's flow effects; the painted snipe's and the frog's recovery plans also bind the decision	[131]; [134], [135]
	(h) There is no cumulative assessment for the bittern or the listed fish, and the threatened frogs were assessed only for copper	[136], [138]
Listed migratory species (ss 20, 20A)	(i) The listed migratory shorebirds have not been assessed at the Ramsar site, though the Commonwealth's guidelines treat changes to their water regime and water depth as highly likely to be significant; and on site Latham's Snipe loses most of the habitat the EES treats as important, which the Commonwealth's advice says "must be avoided"	[130], [131], [140], [144]; [141]
Avoidance, mitigation and offsets	(j) Technical Report D's conclusion of no material impact on MNES depends on measures others must deliver	[149] to [152]

Provision	Finding	Evidence
	(k) Avoidance identified by the EES and the IESC was not taken, and the complementary measures do not meet the 2012 Offsets Policy, so the conclusion cannot rest on them	[146]; [154]; [157]
	(l) The conclusions of no significant impact on the bittern and Latham's Snipe are not adequately supported, so whether an EPBC offset is required remains open	[132]; [141]

225. It seeks recommendations for these controls, by controlling provision:

Provision	Controls sought	Where
A water resource	The take cap and drought pause; environmental water first; downstream triggers; a statutory instrument for the take; cumulative governance	[222](a), (b), (e); conditions 1, 3, 4, 7
A Ramsar wetland	Annual assessment against the current limits of acceptable change, with pre-agreed responses; the lower Latrobe wetland watering infrastructure treated as project measures; a statement of which ecological character description the action is assessed against; estuary salinity triggers	Condition 6; [125]; B12
Listed threatened species	The take rule and downstream triggers, which protect the flows that fill the wetlands of the bittern, the painted snipe and the Growling Grass Frog; survey before clearing; reedbeds kept where the clean-up allows; a like-for-like wetland offset if the bittern impact is significant; the Southern Wetland's water level and reed protected; the Strzelecki Gums monitored; fish-cue flows if the connection is approved	Conditions 1, 4; B1 to B3, B5, B6, B11
Listed migratory species	Survey before clearing; a like-for-like offset if the snipe impact is significant; one clearing window, March to July	B1, B3, B13
Avoidance, mitigation and offsets	No reliance on measures to be implemented by parties the approval does not bind; existing offsets protected; any restoration charge only on top of direct offsets; independent audit, public data and financial assurance	[161], [162]; B4, B7 to B10

FoGL also asks the IAC to recommend two procedural steps for the Commonwealth Minister's decision (cl 28(g)). First, if information sought at [214] has not been provided when the assessment is completed, the Minister should consider whether it is needed to make an informed decision and, if so, request it under s 132. That power reaches the proponent, the Victorian Minister and "any other person the Minister considers appropriate", such as Gippsland Water, and time does not run while a request is outstanding (s 130(5)). Second, the Minister should publish the proposed decision and any proposed conditions for comment under s 131A. Both powers are discretionary; the IAC can only recommend their use.

The draft planning scheme amendment (cl 28(e), 29)

226. FoGL makes five submissions on draft Amendment C159latr. The amendment applies a Specific Controls Overlay and an incorporated document to the Cooling Pond and Salt Pond.

(a) FoGL supports the reinstatement of the natural alignment of Eel Hole Creek, with riparian corridors, wetland establishment and allowance for fish passage. The draft DMRP notes that removing the Cooling Pond will reduce retention and "increase flood volumes downstream";[817] the incorporated document should require that effect to be assessed and managed for Eel Hole Creek and the Morwell River.

(b) The incorporated document should require that runoff ponds discharging into the reinstated Eel Hole Creek meet numerical water quality criteria set in consultation with the EPA. It should also require monitoring in Eel Hole Creek and the Morwell River that continues after the works are complete; the Environmental Management Plan's water quality obligations presently run only "during

[817] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 8, p. 10.

implementation of works".[818] The destination of treated Salt Pond water should be stated. The Scoping Requirements required assessment of "Impacts on water quality in Eel Hole Creek and surrounding watercourses and wetlands associated with dewatering the Hazelwood Cooling Pond",[819] which Technical Report D defers to Technical Report F. The IESC identified two related risks:

- a direct discharge pathway from the Works Effluent Pond "likely to introduce contamination";[820]
- contaminated sediments or "unknown waste deposits" exposed by draining the Cooling Pond.[821]

The proponent answered that EPA Environment Action Notices are "outside of the scope of the EES".[822]

(c) Clause 5.1(b) and (c), which extend the control to any works the Minister confirms in writing are for the purposes of the project, should be confined to works assessed in the EES.

(d) The Environmental Management Plan should give effect to the IAC's recommendations on the Environmental Management Framework as they apply to the Subject Land.

(e) The IAC should not rely on the amendment's statements that the project will "reduce reliance on the use of surface water and groundwater resources at the Hazelwood site", or that impacts on environmental flows in the Latrobe catchment are "appropriately managed".[823] The pit lake requires top-up in perpetuity, and Parts C and G set out why the flow assessment cannot yet support that conclusion.

The conditions sought

Most of these conditions are prescriptive, and the downstream triggers in condition 4 are set on flows rather than on salinity in the lake, for reasons the Commonwealth's own policy gives. The Outcomes-based Conditions Policy lists an action that "is likely to contribute to cumulative impacts or involves multiple projects or industries, making it difficult to identify responsibility for achieving the outcome" among those likely to require prescriptive or systems-based conditions.[824] An outcomes-based condition needs an outcome that is "measurable, able to be enforced and appropriately monitored",[825] and a salinity increase that lake monitoring cannot detect is not [200]. Where changes in a protected matter "are difficult to measure directly", the policy allows a condition on "something which directly supports conservation outcomes for the protected matter and is capable of specific measurement":[826] here, the flows that reach the wetlands and Lake Wellington [230].

227. Condition 1: The take (water resource; Victorian lever).

- An annual cap on Moondarra take at Hazelwood's net historic use of 10.3 GL/yr. Take above that, up to Hazelwood's gross historic use of 14 GL/yr and no more, only if all of the following apply:[827]
    - take only from 1 June to 30 November, and even then not while a winter or spring fresh is running. The take stops whenever the flow reaches the fresh magnitudes in the State's 2020 flow study, 860 ML/day in the Tyers below Moondarra, 3,000 ML/day at Rosedale and 3,200 ML/day at the Swing Bridge, and stays off until the fresh has run the duration the study recommends for the year's climate condition: two days in

[818] ENGIE Hazelwood 2026, *Attachment III: Draft Planning Scheme Amendment, Latrobe Planning Scheme Amendment C159latr*, incorporated document, cl 7.6(b), (d).
[819] Department of Transport and Planning 2023, *Scoping Requirements*, p. 17.
[820] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 3.
[821] Ibid., para 22.
[822] ENGIE Hazelwood 2026, *Attachment VI*, p. 12.
[823] ENGIE Hazelwood 2026, *Attachment III*, p. 44 and Appendix A.
[824] Department of the Environment 2016, *Outcomes-based Conditions Policy*, s 3.2, p. 9.
[825] Ibid., s 3, p. 8.
[826] Ibid., s 2, p. 7.
Department of Energy, Environment and Climate Action 2023, *Explanatory note on surface water access*, p. 12; [29].

the Tyers and at Rosedale; 5 to 20 days at the Swing Bridge, and 10 to 30 days once the flow there exceeds 4,500 ML/day, the fresh that displaces the salt wedge into Lake Wellington.[828] No season protects every species, because the study sets a flow criterion for the site's fish in every month [118]; this rule protects the flows that cue them [121];

    - no take while the Tyers below Moondarra is below the passing flow in [220], the equivalent for this take of the State's Willow Grove threshold, which stops Loy Yang taking unregulated Latrobe flow below 447 ML/day;[829]
    - no Latrobe Reserve water, directly or through Gippsland Water, as the State's conditions provide for the other mines;[830]
    - no take for filling after 2065; and
    - water priced at full environmental opportunity cost, as FoGL sought in 2025, and not at the $230/ML set for Loy Yang, which FoGL does not accept; the West Gippsland Catchment Management Authority has also asked that "a fair value is placed on all water sources for mine rehabilitation".[831]

- A drought pause rule: the Moondarra take stops when drought conditions apply, on a trigger fixed before approval. The starting point is the rule the proponent first proposed, which reduced supply after "several" years of Moondarra inflow below 40 per cent of baseline without a spill [196], with "several" defined; and, in a dry sequence, no water is supplied for the project until Moondarra has spilled in that water year [220]. Meanwhile the pit lake is held within a level band shown before approval to be safe [188]. The State's reasoning for conditions applies to this take: rehabilitation "does not have the same demands for reliability and continuity as power generation, so there is greater flexibility around when water can be extracted from the system", and "more river water could be available for mine rehabilitation during wet periods and less during dry times".[832] Technical Report A accepts that "It is important that water supply for the rehabilitation of the mine void is adaptive, accommodating fluctuating demands and climatic variations".[833]
- Given effect through controls on any EPBC approval (Terms of Reference, cl 28(g)). An EPBC condition can require compliance with the conditions of a State instrument as in force from time to time, even one that does not yet exist when the approval takes effect (s 134(3)(c), (3C)). Also given effect through one of the Water Act routes at [222](e), on the model of Gazette S 703, under which water may be used only "consistent with an approved Declared Mine Rehabilitation Plan and any necessary approvals under the Environmental Protection Act 2017".[834] And given effect through the reduction of the Latrobe permissible consumptive volume the Minister has already initiated (condition 7).

228. Condition 2: The connection (water resource; avoidance). The Morwell River interconnection refused, as the IESC recommended,[835] and because a licence to take the above-cap flood flows falls to be refused under s 55(2B) of the Water Act [216]. FoGL acknowledges that, on the proponent's modelling, the connection would reduce the top-up drawn from Moondarra and groundwater by about 10 per cent, because flood flows would supply part of it.[836] That saving is drawn from water above the cap [216]. Condition 5, which makes manufactured water the top-up source, removes the need for it.

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[828] Alluvium 2020, *Latrobe Environmental Water Requirements*, pp. 124, 129, 143.
[829] Minister for Water 2025, *Loy Yang mine rehabilitation bulk entitlement, Gazette S 703*, cl 15(d)(iii).
[830] Alluvium 2023, *Conditions for water access for mine rehabilitation*, p. 13.
[831] Southern Rural Water 2025, *Statement of Reasons, groundwater licence WLE091664*, p. 5.
[832] Department of Energy, Environment and Climate Action 2023, *Latrobe Valley Regional Rehabilitation Strategy - Amendment*, pp. 16, 17.
[833] ENGIE Hazelwood 2026, *Technical Report A*, p. 14.
[834] Minister for Water 2025, *Loy Yang mine rehabilitation bulk entitlement, Gazette S 703*, cl 17.
[835] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, paras 7, 40.
[836] ENGIE Hazelwood 2026, *Technical Report C1*, p. 116 and Table 10-6, p. 117.

229. Condition 3: Environmental water first (water resource). The remaining Latrobe return and the 13 GL Tyers return delivered before any take above the net-use cap in condition 1 [62], [64].[837]

230. Condition 4: Downstream triggers (water resource; Ramsar wetland). Flow and condition triggers, with graded responses, at the locations in [223](a), with values fixed before approval on published measures: the 100 ML/day Tyers summer baseflow [61], the 3,200 ML/day flow that waters the wetlands and the 130 GL/month flow that flushes Lake Wellington [58], and the 36 and 60 month drying limits (Table 4), with compliance with condition 1's fresh rule reported against the gauged flows, supported by the sampling program sought there, run by an independent auditor with annual public reporting on the model of Gazette S 703,[838] and reviewed at each LVRRS review.

231. Condition 5: Top-up (water resource). Any top-up water required to maintain the pit lake level to be sourced from manufactured water, from a source the proponent shows before approval to be reliable in drought. Recycled water from the Gippsland Water Factory can contribute, but its supply is limited and least available in dry periods [176], so it cannot be that source alone. The water is to be treated to a standard that will not degrade the pit lake or the waters downstream, with the supply secured beyond 2035 and funded for as long as the pit lake exists. Any residual surface water top-up only in wet months, within a stated operating band, and none after 1 December 2065, the date the State applies to Loy Yang. Financial assurance for perpetual top-up, gate operation and downstream monitoring, lodged before relinquishment, with those obligations placed on the declared mine licensee in the post-closure plan [206].

232. Condition 6: Ramsar (Ramsar wetland). An EPBC condition requiring annual assessment against the current limits of acceptable change, with pre-agreed responses, and treating the lower Latrobe wetland watering infrastructure as project measures. The bittern's presence and threatened frog breeding, which the current limits test, to be monitored each season at the lower Latrobe wetlands, including with autonomous acoustic recorders for booming bitterns and calling frogs [137]. The condition would align the project with the Ramsar plan's existing duty to report annually against the limits and targets,[839] and make the results public.

233. Condition 7: Cumulative governance (water resource). Hazelwood's supply counted within the reduced Latrobe River Basin permissible consumptive volume the Minister has initiated,[840] set so that rehabilitation take by all three mines fits within the historic average take of the power generators. Hazelwood's allowable take to be reduced automatically if the cumulative assessment at the next LVRRS review shows the system cannot carry overlapping fills.

234. Condition 8: The combined supply (Victorian lever). The fill to proceed at the net-use cap, with stability groundwater and any available manufactured water, and with manufactured-water top-up (the combined modification, [186]), unless the modelling directed at [214], item 9, shows that the preferred option performs at least as well on the State's wetland metrics.

235. Condition 9: Discharge (water resource). No discharge from the pit lake to the Morwell River except under an Environment Protection Act instrument. The instrument should set numerical limits at the ANZG 95 per cent species protection values, and at the 99 per cent values for toxicants that bioaccumulate, including mercury, selenium and PFAS [78]. It should also set limits for nitrogen and phosphorus (total nitrogen, oxidised nitrogen, ammonium, and total and filterable reactive phosphorus) and for chlorophyll-a, because the receiving water is nitrogen-limited and already above its nutrient thresholds ([79]; Annex 1, section 1.5). ANZG recommends the 99 per cent values for such toxicants even in slightly to moderately disturbed systems, and here they would accumulate in Heart Morass, within the Ramsar site. The gate withholding rule, and the maximum pit lake level while water is withheld, to be stated before approval. The instrument should at least replace MIN5004's requirement that any discharge be as free as possible of pollutants, which ends when the DMRP takes effect [85].

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[837] Department of Environment, Land, Water and Planning 2022, *Central and Gippsland Region Sustainable Water Strategy*, Policy 8-13 (Latrobe return) and Policy 8-15 (Tyers return).
[838] Minister for Water 2025, *Loy Yang mine rehabilitation bulk entitlement, Gazette S 703*, cl 22.
[839] East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, action 7D, p. 89, with thresholds still to be developed under 7E.
[840] *Water Act 1989* (Vic), s 22A.

Fallback controls if the action is approved (s 134)

236. FoGL's primary position does not change. The IAC should first obtain the information FoGL has asked for, make the findings at [224], and recommend against the Morwell River connection. FoGL reserves its position on the final lake level and makes no concession on filling the void. The controls below are sought only if, despite that, the Commonwealth Minister approves the action under s 133. They add to conditions 1 to 9; they do not replace them. EPBC conditions protect MNES only [18], so the conditions for the FFG-listed species follow separately, for the Victorian approvals.

No.	Control	Matter	Basis
B1	**Survey before clearing.** No removal of wetland habitat until targeted surveys to Commonwealth survey guidelines have run for at least one full season for the Australasian Bittern and Latham's Snipe, with habitat mapped and measured by species, including the Cooling Pond marsh. The bittern survey to include autonomous acoustic recorders, set across the ponds and marsh through the October to February breeding season to record booming males [137]. Results published and given to the department. If the bittern is found breeding, or using the ponds more than occasionally, its impact is to be treated as significant and B3 applies [137]	Bittern; Latham's Snipe	s 134(3)(aa), (f); Scoping Requirements, p. 20
B2	**Keep reedbeds where the clean-up allows.** Before the Southern Outlet Ponds, Transfer Point 5 pond, Salt Pond and Works Effluent Pond are decommissioned, the proponent to report, with the EPA's view, on the "alternative remediation options" the EES identifies, and to retain every reed fringe the Clean Up Plan permits [146]	Bittern; Latham's Snipe	s 134(3)(aa), (c)
B3	**A like-for-like wetland offset.** If the bittern or snipe impact is significant: a permanently protected, actively managed freshwater wetland with tall reedbed in the Latrobe catchment, at least the area of Tall Marsh and Cooling Pond marsh removed, scaled for time lag and risk under the Offsets assessment guide. At least 90 per cent direct; secured on title before clearing; with a management plan, targets for reed extent and water regime, and annual public reporting. Any gain at the lower Latrobe wetlands to be additional to what the State has already funded	Bittern; Latham's Snipe	s 134(3)(aa); Offsets Policy, pp. 8, 19, 22 to 24
B4	**Existing offsets protected.** Every existing EPBC Act and net gain offset on the land identified and mapped; no works, drawdown or land transfer affecting them without the department's approval; the obligations carried into the Post-Closure Plan registered on title [156]	Listed species the existing offsets protect	s 134(3)(aa); Offsets Policy, s 7.2.2
B5	**The Morwell River Southern Wetland.** No removal of emergent reed under CRMC05 without ecological advice on bittern use, and no levee lowering without prior assessment. Water level and reed extent targets fixed before approval, with an annual report [133]	Bittern	s 134(3)(aa), (f)
B6	**Strzelecki Gum and the drawdown.** Groundwater levels and tree condition monitored at the retained Strzelecki Gums near the Yinnar Road culvert during and after the Cooling Pond is drained, with a stated response, such as watering, if decline is detected [136]	Strzelecki Gum	s 134(3)(f)
B7	**No reliance on undelivered measures.** CM1 and CM2 not treated as mitigation or offset. If the connection is nonetheless approved, no flood water taken until CM1 is designed, agreed with DEECA, secured by legal instrument and in place [161]; the 2012 Policy requires an offset to be implemented before, or at the same time as, the impact (p. 23)	Water resource; Ramsar wetland	s 134(1), (2)
B8	**A restoration charge only on top.** Any restoration contribution charge to be in addition to the direct offsets in B3, not instead of them [17]; the 2012 Policy does not allow offsets to be traded across protected matters (p. 17)	All	s 134(3)(ac) (Reform Act, item 712); consent, s 134(3A)(c)
B9	**Independent audit and public data.** An independent ecological audit of B1 to B6 and B11 to B13 at set intervals, published, and all	All	s 134(3)(d), (f)

No.	Control	Matter	Basis
	ecological monitoring data published, not held only by "ENGIE Hazelwood and its contractors" (Chapter 26, p. 26-51)		
B10	**Financial assurance.** A bond or equivalent covering the offset and monitoring obligations through relinquishment and after, alongside the assurance for top-up and gates in condition 5	All	s 134(3)(a)
B11	**Fish-cue flows, if the connection is approved.** No flood water taken from the Morwell River from February to May, when Australian Grayling spawn on rising flows, or when the take would bring a winter or spring fresh, bankfull or overbank flow at Thoms Bridge below the 2020 flow study's recommendation of 6,000, 10,000 and more than 15,000 ML/day [60], [134]	Australian Grayling; Ramsar wetland	s 134(1), (2)
B12	**Estuary salinity triggers.** Added to the triggers in condition 4: mid-water salinity and salt-wedge position in the mid-lower Latrobe estuary from October to December, and how often flows at the Swing Bridge exceed 4,100 ML/day, with graded responses that include pausing the take, and the data published [118]	Ramsar wetland (native fish)	s 134(2), (3)(f)
B13	**One clearing window.** Wetland habitat removed only from March to July, outside the bittern's breeding season (October to February) and the months Latham's Snipe is present (August to early March), with the Glossy Grass Skink window reconciled in the Fauna Management Plan before approval [142]	Bittern; Latham's Snipe	s 134(1), (2)

237. For the Victorian approvals, FoGL seeks these conditions in the Environmental Management Plan under the draft PSA and in the Environmental Management Framework (cl 28(e), (f)). The IAC's recommended conditions exclude the Declared Mine Rehabilitation Plan (cl 8, 28(e)); the same conditions should be reflected in that plan when it is approved under the Mineral Resources (Sustainable Development) Act 1990.

No.	Condition
V1	**Recalculate the native vegetation offset** on a reconciled extent, including the 1.64 ha island, and publish the Native Vegetation Removal report and habitat hectare scores. Include the Cooling Pond marsh if it is 10 years old or more when removed. Offset secured before any removal [155]
V2	**Species offsets or equivalent outcomes** for Lewin's Rail, the Australian Little Bittern, the Glossy Grass Skink and Flinders Pygmy Perch, whose local populations the EES says may be significantly affected, with the habitat importance check published [139]
V3	**Translocation and salvage success criteria** for the skink and the perch, with five years of monitoring after release and a stated response if the criteria are missed [147]
V4	**One rule for the timing conflict** at ponds holding both skink and breeding-bird habitat (ECMM14), set with DEECA before works [142]
V5	**Ecological monitoring beyond the works** (ECMC01), with set frequencies, for at least the passive rehabilitation phase, including groundwater and the Swamp Scrub at the Yinnar Road culvert as Swamp Skink habitat, with its hydrology maintained [147], [136]

Matters for other decision-makers

238. FoGL records what it seeks from decision-makers outside the IAC's report:

- **The Minister for Water** ([216] to [222](e)). This includes, when consulted on the plan's closure criteria and on closure, seeking criteria that secure the top-up source and downstream monitoring.
- **The Commonwealth** [159].
- **The Department Head, through the Declared Mine Rehabilitation Plan** [206]:
  - a fill plan with a drought pause rule;
  - a secured top-up source for after 2035 and after relinquishment;
  - a post-closure plan that places perpetual top-up, gate operation and downstream monitoring on the licensee;
  - financial assurance sized for those obligations; and

- completion criteria that include downstream outcomes.

Administration of the Mineral Resources (Sustainable Development) Act is to have regard to the precautionary principle. The regional rehabilitation strategy must be reviewed at least every three years, and the next review is where the cumulative assessment Technical Report D defers should be done [74].

Summary of recommendations sought

239. The IAC's report must list its recommendations; FoGL's, and the clause each answers, are:

No.	FoGL recommends	Terms of Reference clause	Paragraph
1	Find that the EES assesses an increment over a baseline containing the take, and that the first 20 GL/yr is not assessed as an effect of the project	4, 28(b)	[211](a); Part B
2	Find that the information identified as necessary by the Scoping Requirements has not been provided, and that effects cannot be found acceptable without it	4, 28(b)	[212]
3	Direct the proponent to provide the fifteen items of further information before the Hearing	20	[214]
4	Include questions from Part I, in particular Q5 and Q15, in its own request for information	20	[215]
5	Recommend against the connected scenario	10(d), 28(b)	[213]; condition 2
6	Recommend that no licence or other authorisation be granted for the above-cap Morwell flood flows	28(e)	[216] to [219]
7	Recommend a take rule for the Tyers below Moondarra	28(c), 28(e)	[220]
8	Recommend that the groundwater licence not be varied in volume or purpose to support filling, drought fallback or top-up without assessment	28(e)	[221]; [45] to [48]
9	Recommend a cap on the Moondarra take at net historic use unless the State's conditions apply	28(c), 28(d), 28(g)	[222](a); condition 1
10	Recommend a drought pause, with the pit lake held in a safe level band	28(c), 28(d)	[222](b); [188]
11	Recommend that the remaining Latrobe and Tyers environmental water returns be delivered first	28(c)	[222](c); condition 3
12	Recommend a combined supply, with manufactured water as supplement and top-up	28(d)	[222](d); conditions 5, 8
13	Recommend that the take above net historic use not proceed until it is brought within a Water Act instrument held by Gippsland Water, or approved by the Minister as an assignment	28(c)	[222](e)
14	Recommend downstream monitoring, triggers, independent audit, public reporting and a contingency plan for diversion failure in the Environmental Management Framework	28(f)	[223]; condition 4
15	Recommend numerical discharge criteria, including the 99 per cent values for bioaccumulating toxicants, and an EPA instrument for any discharge	28(e), 28(f)	[223](c); condition 9
16	Find that acceptable outcomes depend on the perpetual obligations being secured	28(b)	[223](f)
17	Make the findings on MNES set out by controlling provision at [224]	28(g)	[224]; Part D

No.	FoGL recommends	Terms of Reference clause	Paragraph
18	Recommend the controls for MNES set out by controlling provision at [225]	28(g)	[225]; condition 6
19	Recommend the modifications to draft Amendment C159latr set out at [226]	29	[226]
20	Recommend that Hazelwood's supply be counted within the reduced Latrobe permissible consumptive volume	28(c)	condition 7
21	If the action is approved despite those findings, recommend the fallback controls B1 to B13, and the conditions V1 to V5 for the Victorian approvals	28(e), 28(f), 28(g)	[236], [237]
22	Recommend that the Commonwealth Minister consider requesting under s 132 any information sought at [214] that is not provided, and publish the proposed decision and conditions for comment under s 131A	28(g)	[225]

Part I: Questions to the proponent

In this Part. Ten priority questions come first, each tied to a headline issue. The remaining questions follow under "Further questions" at the end of the Part.

In short: the questions the proponent should answer in writing before the Hearing, each with the basis in its documents and what is sought.

240. FoGL asks the IAC to include any of the following questions it finds useful in its own request for information, in particular Q5 and Q15, so that the answers can be tested at the Hearing; FoGL will put any left unanswered to the relevant witness. FoGL holds further questions for the hearing itself.

Priority question	Why it matters
Q1 The first 20 GL/yr	If no study treats it as an effect of the project, the baseline finding at [211](a) follows. (Issue 1)
Q2 The supply agreement	Its reduction clause decides whether the drought protection the EES relies on exists. (Issue 2)
Q3 Reliability of supply	The EES claims 100 per cent compliance while its water report shows a dry-case shortfall. (Issue 3)
Q4 Groundwater	The fill, the drought fallback and the top-up rely on groundwater the renewed licence does not authorise. (Issue 3)
Q5 The void now	Surface water is being retained above the level the EES assumed, on an authority that has not been identified. (Issue 1)
Q6 Cumulative effects	No assessment counts the three mines' take as new; their combined effect is unknown. (Issue 2)
Q7 Flood flows and the gate	The legality of the above-cap take and the discharge criteria are both unresolved. (Issue 5)
Q8 The Ramsar site	The site was assessed against superseded limits; drying duration and listed species were not assessed. (Issue 4)
Q9 Lake Wellington inflow	The "less than six months" claim has no calculation, and its inflow basis decides the salinity effect. (Issue 4)
Q10 The draft DMRP against the EES	The plan that will govern the pit lake contradicts the EES on equilibrium, inflow, discharge and monitoring (Table 7). (Issue 5)

The remaining questions (Q11 to Q23) follow under "Further questions" at the end of this Part.

Water: the baseline and the take

Q1 The first 20 GL/yr. Identify any study, by the proponent or the State, in which the first 20 GL/yr of Hazelwood's take has been assessed as an impact on the Latrobe system, rather than carried as baseline. The EES rivers baseline, the Alluvium 2023 study and DELWP 2020 all carry it as given [24], [28].[841]

Sought: The study, or a statement that none exists.

Q2 The supply agreement. Produce the clause of the Water Services Agreement governing reduction or suspension of supply. State its trigger, and whether it has ever been invoked. State whether supply is made by assignment of Gippsland Water's allocation (Water Act s 46) and, if so, produce the Minister's approval. The EES describes the agreement nine ways [35], and it is "valid until 2035".[842]

Sought: The clause, and any approval of an assignment.

Q3 Reliability of supply. The EES's statements on Moondarra supply range widely [43]:

- "100% compliance" for 20 and 30 GL/yr under every climate, including the Millennium Drought;[843]
- about 95 per cent of 20 GL/yr under the dry scenario;[844]
- top-up unavailable at times under the high climate;
- Gippsland Water's supply falling to 2.48 GL/yr nine years in ten by 2040;[845]
- in the referral, a maximum of "around 24.5GL per annum", with "8GL... as an estimated minimum".[846]

Which model produced the 100 per cent figures? What priority did it give Hazelwood relative to Gippsland Water's other customers and to passing flows? How did it treat the correlation between Moondarra and Morwell River inflows that the IESC raised?[847] What agreement supplies the 30 GL/yr the fast fill assumes?

Sought: The model behind the 100 per cent figures and its settings; the agreements relied on for supply above 24.5 GL/yr; and the interrupted-fill run at [214], item 2.

Q4 Groundwater. Answer each of the following [45] to [48]:

- **Volume.** The fast fill assumes 23 GL/yr; the renewed licence authorises 18.4 GL/yr.[848] What are the fill times at 18.4 GL/yr? What remains for the drought measure's "increased groundwater usage"?[849]
- **Purpose.** Condition 3 excludes extraction to create a pit lake beyond safe and stable levels [46]. On what basis does the EES describe the renewed licence as providing groundwater "as a source of water for pit lake filling"?[850] Has a separate application been made or proposed for the fill, the drought measure, and the M2 top-up bores?[851] What is the agreed safe and stable level at which groundwater take for filling must cease?
- **Expiry.** What is the source of groundwater top-up after the licence expires on 30 June 2030, given the pit lake is expected to be full at the end of 2035?

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[841] Alluvium 2023, *Conditions for water access for mine rehabilitation*; Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*.
[842] ENGIE Hazelwood 2026, *Technical Report B*, p. 56.
[843] ENGIE Hazelwood 2026, *Attachment VI*, p. 8; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-29.
[844] ENGIE Hazelwood 2026, *Technical Report C1*, p. 97.
[845] ENGIE Hazelwood 2026, *Technical Report B*, Table 7-7, p. 63.
[846] ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239*, p. 1.
[847] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, paras 11, 15.
[848] ENGIE Hazelwood 2026, *Attachment IV*, Table 3-3, p. 23; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, Table 4-4, p. 4-20.
[849] ENGIE Hazelwood 2026, *Technical Report D*, mitigation measure MM1, p. 272.
[850] ENGIE Hazelwood 2026, *Technical Report E*, p. 26.
[851] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-21.

Sought: Revised fill times, the authorisation relied on for each use, and the agreed safe and stable level.

Q5 The void now. What are the void's current level and volume? The EES assumed RL -7 m at the start of 2026, after which surface water take would cease.[852]

- On what authority, and at what rate, is Moondarra water being retained above RL -7 m pending a decision?
- Does retention date from 2017, as the draft DMRP says, or from late 2021, as Attachment IV says?
- With the 2019 Work Plan Variation never approved [24], what instrument authorises retention now?

Sought: The level record since late 2021, and the authority relied on.

Water: climate, flows and cumulative effects

Q6 Cumulative effects. Model the three mines' rehabilitation takes together against current conditions, with Loy Yang and Yallourn at their own figures; the gaps in the cumulative modelling are set out at [72] to [74].

Sought: The cumulative scenario at [214], item 5.

Water: the connection and discharge

Q7 Flood flows and the gate. Answer each part:

- **Authorisation.** Technical Report D (catchments, rivers and wetlands) calls the flood water "above cap".[853] Given s 55(2B), what authorisation could lawfully issue, and what is Chapter 5's "new category of approval"?[854] When will the CM1 offset be designed? Does the proponent accept that it cannot apply for a bulk entitlement, its generation licence having been revoked in 2017? If it says an associated company such as Hazelwood BESS Project Co could apply, which entity would hold the entitlement and the rehabilitation obligations?
- **History and threshold.** What flows reached the lower Latrobe wetlands and Lake Wellington in 2022, while the temporary diversion took 34.1 GL [66]? Is the diversion threshold a two-year event or a five-year event?[855]
- **The gate.** What are the numerical "water quality criteria", including for nitrogen and phosphorus?[856] Did the modelled discharges assume the gates open when copper exceeds the ANZG 95 per cent value, as Technical Report C1 (lake water balance and water quality) predicts it always will?[857] How high may the pit lake rise while water is withheld, given a constant RL +45 m is "critical" to stability?[858] What Environment Protection Act instrument will govern the discharge? What rainfall copper value underlies the attribution of copper exceedances to background? A local rainfall median of 0.051 mg/L is about 36 times the 95 per cent guideline.[859]
- **The inlet limit.** Which applies: the EES's flood take of about 4 GL/yr during the fill [65], or the draft DMRP's "basal flow of 2.5GL of water per annum", with the penstock able to admit 3 GL/day in major downstream floods?[860]

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[852] ENGIE Hazelwood 2026, *Attachment IV*, p. 20.
[853] ENGIE Hazelwood 2026, *Technical Report D*, p. 73.
[854] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-11.
[855] ENGIE Hazelwood 2026, *Technical Report B*, p. 89 (two-year event); ENGIE Hazelwood 2026, *Attachment IV*, p. 24 (five-year event).
[856] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-16.
[857] ENGIE Hazelwood 2026, *Technical Report C1*, Table 10-10, p. 133.
[858] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-22.
[859] ENGIE Hazelwood 2026, Technical Report C1, pp. iii, 107.
[860] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Appendix B, Critical Control Performance Standard 1107; Appendix C, p. 18.

Sought: The authorisation relied on; the criteria and withholding rule; and the August 2024 EPA risk-of-harm audit, Part 2.[861]

Biodiversity and MNES

Q8 The Ramsar site. Answer each of the following (Part D):

- Chapter 25 tests Lake Wellington for a change "from a permanent freshwater lake", a type the State now says the lake never had, and the Addendum leaves the lake with no limit of its own. Against what salinity at listing was the project's increment judged [105]?
- Technical Report H1 defers the downstream environment to Technical Report D, and Technical Report D assesses limits, not species. Which document assesses the project's effect on the bittern and the listed shorebirds at the site?
- Which species does the proponent say s 158A excuses from assessment, and under which controlling provision? Why are the curlew sandpiper, eastern curlew, great knot, red knot and bar-tailed godwit, all threatened before 2023 and all migratory, not assessed at the site?

Sought: The reassessment at [214], item 6.

Q9 Lake Wellington inflow. What inflow series produced the 7.2 per cent reduction used in the salinity analysis? Technical Report D reports mean annual flow falling only 1.3 per cent at Swing Bridge and 2.3 per cent at Rosedale.[862] What are the dry-climate salinity results? What calculation, and what rate of salinisation from what record, supports the statement that the project will "accelerate a several-decades long process by less than six months"?

Sought: The series, the dry-climate results, and the calculation behind the six-month figure.

Mitigation and the DMRP

Q10 The draft DMRP against the EES. Produce the Lake Hazelwood Operating Plan said to form part of the draft DMRP, and the Lake Level Management Plan that its closure criterion 34 relies on (Table 7).

Sought: The Lake Hazelwood Operating Plan and the Lake Level Management Plan.

Further questions

Q11 The entitlement. Technical Report D says the 1997 conversion order was granted "after considering each of the matters in s 40". The order, made under ss 43 and 47, records no such consideration [34]. Identify the record relied on, including the explanatory note that accompanied the order.

- How much Moondarra water has Gippsland Water supplied to the site in each year since 2017? The State's accounts record Moondarra take of 32.5 to 35.2 GL a year from 2017-18 to 2020-21, and 43.3 to 51.9 GL a year since [24].
- Does Hazelwood's take sit within Gippsland Water's "bulk entitlement of 62 GL per annum",[863] or on top of it, as the rivers model's 62 GL/year of other Moondarra demand suggests? If the model carries 62 GL/year of other demand as well as Hazelwood's take, it models more than the entitlement allows and more than the recorded take. Which is right, and how does the difference affect the reported changes in the Tyers? On the State's accounts at [24], the fast fill's 30 GL/yr added to the 2017-18 to 2020-21 take of 32.5 to 35.2 GL would bring Moondarra take to about 62.5 to 65.2 GL a year, at or above the order's 62 GL, averaged over two years. How would the fast fill be supplied within the entitlement, and at the expense of what other use or flow?

Sought: The record relied on, and annual supply to the site since 2017.

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[861] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 5, p. 5-15; listed as "Environmental Audit: Mine Void - Part 2, Hazelwood Power (AECOM, 2024)" in ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 12, Table 12.2, item 96.
[862] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.2, p. 4; Table 72, p. 181.
[863] ENGIE Hazelwood 2026, *Technical Report D*, p. 3.

Q12 Fill rate in a drier climate. Is the fast fill lower risk than the slow fill under the high climate and post-1997 runoff behaviour, as Technical Report D finds it to be under the medium climate?

Sought: The comparison at [214], item 3.

Q13 Estuary thresholds. Identify the source of the estuary thresholds in Technical Report D.

Sought: The source; estuary compliance retested against the published recommendations.

Q14 Environmental water. On what basis does the rivers model assume the Sustainable Water Strategy returns are "implemented and in place" from the start of 2026?[864] It carries 15 GL/yr "for all model configurations",[865] against one return partly delivered and the Tyers return not started [62].

Sought: The rerun at [214], item 4.

Q15 The Tyers drought trigger. The "several continuous years" trigger the IESC asked to be defined is absent from the final EES.[866] What will trigger the drought measure, and when will it be defined?

Sought: The trigger, stated before approval.

Q16 Contaminants beyond the weir. Where in the EES is the groundwater pathway from the void to the Morwell River assessed and quantified?

- **What the Commonwealth found.** Reconnection "will potentially provide a mechanism for contaminants to enter the river from within the mine void", and backlogging of the groundwater flow regime will likely cause "salinity issues and impacts on vegetation surrounding the mine void".[867] The MLRA advised monitoring that interaction.[868]
- **The gradient.** Technical Report E (groundwater) finds the Morwell "a losing system locally", with "inferred groundwater flow towards the mine void".[869] How much river water is drawn toward the void now, and what happens to that gradient at RL +45 m?
- **Low flows.** The delegate found that in low flows "water from the pit lake will constitute the main flow in the Morwell River".[870] What share of Morwell flow does the modelled weir discharge represent in the driest months?

Sought: The assessment of the groundwater pathway, and the pit lake's share of low flows.

Q17 PFAS. Produce the PFAS audit Chapter 25 relies on, or identify where Technical Report F reports it. Ducks, eels and fish from Heart Morass carry elevated PFAS. The Commonwealth noted that "almost any concentration of PFAS released into the environment is likely to exceed applicable regulatory standards".[871]

- What PFAS concentrations are predicted in the pit lake and the weir discharge, including from Cooling Pond water?
- On what data does Technical Report D attribute the Heart Morass PFAS "most likely" to the Sale air base?[872]
- Why was no further risk assessment done when the proponent's peer reviewer asked for one?[873]

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[864] ENGIE Hazelwood 2026, *Attachment IV*, p. 9.
[865] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 2, p. 5.
[866] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 25c.
[867] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, paras 62-63.
[868] Mine Land Rehabilitation Authority 2022, *Hazelwood Rehabilitation Investigation Report*, p. 55.
[869] ENGIE Hazelwood 2026, *Technical Report E*, p. 82.
[870] Department of Climate Change, Energy, the Environment and Water 2023, *Statement of Reasons, EPBC 2022/09239*, para 59.
[871] Ibid., para 61.
[872] ENGIE Hazelwood 2026, *Technical Report D*, p. 209.
[873] Ibid., Attachment 3.8, Table 1, item 5.

Sought: The audit, and predicted PFAS concentrations for the pit lake and any discharge.

Q18 The scoring. Why were downstream effects of the take scored as nil for Alternatives 5 and 6,[874] **when the criteria as written include downstream ecology and the Gippsland Lakes?**

- Was any weighting sensitivity run?
- Why was no alternative scored that combines a capped surface take with manufactured water?
- For how long can the pit lake be held safely in each level band during filling?[875]

Sought: The rescoring and holding periods at [214], item 9.

Q19 Top-up after 2035. After the agreement ends in 2035, and after relinquishment:

- what is the source of the top-up the pit lake needs to hold RL +45 m?[876]
- what will it cost?
- who pays?

Sought: The top-up source, and a costed estimate of the perpetual obligations ([223](f); [206]).

Q20 Survey data. What surveys were done for the Australasian Bittern and Latham's Snipe in the works area, the Cooling Pond and the Morwell River (Southern) Wetland, on what dates and by what method? If none was targeted, say so. How many snipe were counted, against the "more than 18" assumed [137]?

Sought: The survey data, or a statement that there is none.

Q21 Habitat by species. State the area of habitat removed or degraded for each listed species, including the Cooling Pond Tall Marsh.

Sought: A table of habitat area by species.

Q22 The Grayling. Is the lower Latrobe population of the Australian Grayling, which the 2008 recovery plan lists among the important rivers for the species, an important population? If so, what is the project's effect on the frequency of the February to May spawning freshes at Thoms Bridge and Rosedale, and on the spring flows that return juveniles upstream [134]?

Sought: A significance assessment against the vulnerable-species test, with cumulative effects.

Q23 Flow events. Report the change in the number of freshes, bankfull and overbank events per year, not runs of years without an event, at Thoms Bridge, Rosedale, Kilmany South and the Swing Bridge, under the medium and high climate scenarios, with the Swing Bridge measured against the 2020 flow study's estuary recommendations rather than those for Reach 5 of the river [60]. Report baseflow compliance as the share of days meeting each recommendation [117].

Sought: Events per year and baseflow compliance for the baseline and each scenario.

[874] ENGIE Hazelwood 2026, *Attachment I*, p. 77.
[875] CMQ 2025, *Pit lake level study*.
[876] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-22.

Tables

Table 1: The State's 2020 benchmark against the Hazelwood EES

A. The take

Item	2020 benchmark (and State position 2023)	Hazelwood EES
A1 Surface water	14.0 GL/yr diverted, 3.7 returned, net 10.3 GL/yr (2006/07 to 2018/19); drought-year net 12.7[a]	20 GL/yr slow or 30 GL/yr fast from Moondarra, none returned[b]
A2 Mine groundwater	Hazelwood discharged 14.1 GL to the rivers in 2017-18[c]	About 12 GL/yr now retained in the void, rising to 15 to 23 GL/yr;[d] discharges "have now ceased and do not form part of the baseline conditions";[e] licence 18.4 GL/yr against 23 GL/yr assumed;[f] licence condition 3 excludes extraction to create a pit lake beyond safe and stable levels
A3 Approval	About 20 to 22 GL/yr "subject to the Minister for Water's (or delegates) approval", used sequentially by all three mines;[g] Hazelwood excluded from the later process because ENGIE "already has access"[h]	"No further approvals are required, or sought";[i] LVRRS measures identified for Yallourn and Loy Yang "rather than the Hazelwood Mine"[j]
A4 Cap	Filling "limited to the power stations' current annual net usage" and "restricted or halted under dry conditions";[k] net use means no increase in risk, gross use only with conditions	No cap below the contract; 1.9 to 2.9 times net historic use (Note 1); 1.4 to 2.1 times gross historic use
A5 Conditions	30 years or 2065; June to November; no take below 447 ML/day at Willow Grove; Blue Rock release limits[l]	None. Interruptible supply, no contractual minimum, agreement "valid until 2035";[m] the referral described "no guarantees in relation to supply", a maximum of about 24.5 GL/yr and an estimated minimum of 8 GL[n]
A6 Reliability	Gippsland Water supply could become a constraint[o]	2040 high climate: 18.5 GL/yr average but 2.48 GL/yr at 90% reliability;[p] Moondarra meets about 95% (dry) and 99% (post-1997) of a 20 GL/yr demand;[q] no figure for 30 GL/yr
A7 Current take	Not applicable: retention began in late 2021	About 20 GL/yr from Moondarra and 12 GL/yr of groundwater retained since late 2021; void filling at about 32.5 GL/yr, full in about 15 years without the project[r]

[a] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, Table 10, p. 20.
[b] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, Table 4-4, p. 4-20; ENGIE Hazelwood 2026, *Technical Report D*, p. 3.
[c] Hale, J. et al. 2020, *Ecological Effects Assessment*, Table 6, p. 27.
[d] ENGIE Hazelwood 2026, *Technical Report D*, pp. 2, 53.
[e] Ibid., p. 139.
[f] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, Table 4-4, p. 4-20.
[g] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 27.
[h] Department of Energy, Environment and Climate Action 2023, *Explanatory note on surface water access*, p. 6.
[i] ENGIE Hazelwood 2026, *Technical Report D*, p. 3.
[j] Ibid., p. 18.

[k] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 26.
[l] Department of Energy, Environment and Climate Action 2023, *Explanatory note on surface water access*, p. 2; Minister for Water 2025, *Loy Yang mine rehabilitation bulk entitlement, Gazette S 703*.
[m] ENGIE Hazelwood 2026, *Technical Report B*, pp. 56, 98-99.
[n] ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239*, p. 1.
[o] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 27.
[p] ENGIE Hazelwood 2026, *Technical Report B*, Table 7-7, p. 63.
[q] ENGIE Hazelwood 2026, *Technical Report C1*, p. 97.
[r] ENGIE Hazelwood 2026, *Technical Report D*, p. 53; ENGIE Hazelwood 2026, *Attachment IV*, p. 19.

B. Fill and after

Item	2020 benchmark	Hazelwood EES
B1 Fill time	15 to 20 years plus 5 for evaporation, "assuming no interruption to supply", and "could be significantly under-estimated"[a]	Baseline 15 to 17 years; slow connected 13 to 15; fast unconnected 9 to 11; fast connected 8 to 11[b]
B2 Post-fill	Net evaporation 4.0 GL/yr, post-1975, no warming uplift[c]	Top-up needed "on most years";[d] mean 2.7 to 8.2 GL/yr, single-year maximum 12.9 GL;[e] Moondarra the first purchased source, after Morwell Main Drain runoff and Morwell River flood flows; no end date
B3 Floods	"No access to flood flows" assumed;[f] harvesting floods "will be detrimental"[g]	Morwell flows over 2,400 ML/day; about 4 GL/yr in fill, range 0 to 20 GL;[h] 6 to 10 GL/yr post-fill;[i] water "considered 'above cap'", beyond the Latrobe's permissible consumptive volume[j]

[a] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, pp. iii, 31.
[b] ENGIE Hazelwood 2026, *Technical Report D*, p. 58.
[c] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, Table 16, p. 25.
[d] ENGIE Hazelwood 2026, *Technical Report C1*, p. 116.
[e] ENGIE Hazelwood 2026, *Attachment IV*, p. 24.
[f] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 27.
[g] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 43.
[h] ENGIE Hazelwood 2026, *Technical Report D*, p. 4.
[i] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-22.
[j] ENGIE Hazelwood 2026, *Technical Report D*, p. 73.

C. Climate premises

Item	2020 benchmark	Hazelwood EES
C1 Reference	Post-1997 runoff 23% below post-1975, "drier than the medium climate change projection for the year 2040";[a] "prudent" to treat as a new baseline;[b] the Ecological Effects Assessment's future climate is post-1997.[c] DEECA's 2025 guidelines note wetter conditions since 2020	Record 1957 to 2020, post-1975 scaled; post-1997 used for pit supply but not for rivers and wetlands
C2 2065 runoff	Medium -16.3%, high -41.5%[d]	Medium -16.3%, high -41.5%[e]
C3 Weighting	Projections "equally plausible"[f]	Medium "chosen as the most likely scenario for climate";[g] no scenario "more than likely than another";[h] Technical Report D's approach "to focus on the median climate scenario", and dry conditions "not expected to prevail for several decades"[i]
C4 After 2065	Linear extrapolation[j]	Flat line extrapolation
C5 Outlook	Under medium, demand exceeds average availability from about 2035[k]	Not restated

[a] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, Table 5, p. 14.
[b] Ibid., p. iii.
[c] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 30.
[d] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, Table 6, p. 15.
[e] ENGIE Hazelwood 2026, *Technical Report A*, p. 47.
[f] Department of Energy, Environment and Climate Action 2023, *Explanatory note on surface water access*, p. 11.
[g] ENGIE Hazelwood 2026, *Attachment IV*, p. 16.
[h] ENGIE Hazelwood 2026, *Attachment VI*, pp. 8, 9, 13.
[i] Ibid., pp. 13, 17.
[j] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 16.
[k] Ibid., p. 30.

D. System context and effect

Item	2020 benchmark	Hazelwood EES
D1 Shortfall	Minimum environmental demand unmet in 15 of 21 years since 1997, against 3 of 22 before;[a] baseline risk already high	Sustainable Water Strategy shortfall of 129 GL/yr recorded[b]
D2 Return flows	Return flows "climate resilient"; conditions "cannot offset" the loss of irrigators' incidental benefits from them;[c] 15% further baseflow decline below the Morwell confluence, unmodelled[d]	Hazelwood's excluded from baseline; loss not quantified
D3 Env water	The 2025 3/4 Bench reallocation (statutory process completed March 2025) created three 5.333 GL entitlements[e]	15 GL/yr environmental water "for all model configurations"[f] (Note 2)
D4 Tyers	Sustainable Water Strategy Policy 8-15: up to 13 GL/yr returned by 2032 (status: not started)[g]	Assumed "once the Hazelwood mine lake has been filled"[h]
D5 Cumulative	The Ecological Effects Assessment tests "full uptake of industrial demands",[i] and records that "the timing, volume and sequencing of fill events" are unknown[j]	Yallourn and Loy Yang filling placed in the baseline of every rivers run, so their effect cancels out of reported results; no rivers cumulative scenario; Hazelwood's 20 GL/yr also in the baseline of the Alluvium 2023 study;[k] Loy Yang "some temporal overlap"[l]
D6 Headline result	Lake Wellington flushing flow in 46% of months natural, 31% current, 18% full uptake drier climate[m]	Swing Bridge 995 to 982 GL/yr, 1.3%;[n] Tyers 60 to 51 GL mean, 15 to 8 GL dry year;[o] Lake Wellington inflow 7.2% lower[p] (Note 3)

[a] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, p. 24.
[b] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-12; ENGIE Hazelwood 2026, *Technical Report D*, p. 103.
[c] Department of Energy, Environment and Climate Action 2023, *Explanatory note on surface water access*, p. 12.
[d] Hale, J. et al. 2020, *Ecological Effects Assessment*, pp. 31, 35.
[e] Department of Energy, Environment and Climate Action 2025, *Sustainable Water Strategy 2024-25 Progress Report*, p. 9.
[f] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 2, p. 5.
[g] Department of Energy, Environment and Climate Action 2025, *Sustainable Water Strategy 2024-25 Progress Report*, p. 19.
[h] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 2, p. 5.
[i] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. 30.
[j] Ibid., p. 35.
[k] ENGIE Hazelwood 2026, *Technical Report D*, Table 108, p. 259.
[l] ENGIE Hazelwood 2026, *Technical Report B*, p. 107.
[m] Hale, J. et al. 2020, *Ecological Effects Assessment*, Table 8, p. 34.
[n] ENGIE Hazelwood 2026, *Technical Report D*, Tables 71-72, p. 181.
[o] Ibid.
[p] Ibid., Attachment 3.2, p. 4.

Notes. (1) 20 and 30 GL/yr against 10.3 GL/yr net.[877] Against gross use of 14 GL/yr the multiples are 1.4 and 2.1. (2) Three equal entitlements of 5.333 GL give about 5.3 GL/yr to the environment; the model carries 15 GL/yr (7.3 GL for Policy 8-12 and 7.7 GL for Policy 8-13),[878] about 9.7 GL/yr more. (3) Row D6 is not like-for-like by design; Table 2 makes the comparison.

[877] Department of Environment, Land, Water and Planning 2020, *Latrobe System Water Availability Technical Report*, Table 10, p. 20.
[878] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 2, p. 5.

Table 2: The State's wetland flow metrics against what the EES reports

The same flow study, Alluvium's 2020 environmental water requirements report, underpins both documents.[879] The Ecological Effects Assessment reports what the flow regime delivers to the wetlands.[880] The EES reports percentage changes against a baseline in which the pit is already filling. The Ecological Effects Assessment's "full use" columns test full uptake of existing industrial demands;[881] they are not a model of this project's take, and FoGL uses them to show what the wetlands receive, not to measure the project.

A. Ecological Effects Assessment, Table 8

Flow component	Natural, current climate	Current use, current climate	Current use, future climate	Full use, current climate	Full use, future climate
130 GL/month in the Latrobe Estuary, to flush Lake Wellington					
Percentage of months flow occurs	46	31	20	28	**18**
Percentage of years flow not met	5	20	32	20	**35**
3,200 ML/day in the Latrobe Estuary, freshwater to wetlands through infrastructure					
Percentage of days threshold exceeded	44	27	19	25	**17**
Maximum interval threshold not achieved (days)	249	613	626	614	**630**
15,000 ML/day in the Latrobe Estuary, to flush wetlands					
Percentage of years flow is met	25	15	2.5	15	**2.5**

CSIRO's 2022 study for the Commonwealth cites the same 31 per cent figure for the Lake Wellington flush under current use and climate, and names ensuring those flows as the medium-term management response for the lake.[882]

B. What the EES reports instead

Ecological Effects Assessment metric	Nearest EES treatment	Source
130 GL/month flush frequency	Baseline frequency reported (154 events, 1957 to 2020, about 2.4 a year), but not for any project scenario. Tested otherwise only as two consecutive years without a flush (6 non-compliant years medium, 30 dry). Lake Wellington reported as a 7.2% inflow reduction and a 0.67 ppt salinity increase	Technical Report D; Chapter 25; Technical Report D, Attachment 3.2

[879] Alluvium 2020, *Latrobe Environmental Water Requirements*.
[880] Hale, J. et al. 2020, *Ecological Effects Assessment*, Table 8, p. 34.
[881] Ibid., p. 30.
[882] Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site*, pp. 99-100.

Ecological Effects Assessment metric	Nearest EES treatment	Source
3,200 ML/day at Swing Bridge	Not among the thresholds tested (250, 620, 920, 2,200, 3,500 and 5,000 ML/day). "Overbank" days (5,000 ML/day, against Alluvium 2020's 14,000 to 17,000) 14 to 13.9%, Dowd Morass filling days 8.8 to 8.7%, medium climate only	Technical Report D; Chapter 25
Maximum interval not achieved	Not reported for any threshold	None
15,000 ML/day wetland flush	Not reported. Years without an estuary flushing event "unchanged at nine years" over 63; Sale Common drying set aside as "managed exclusion of water"	Chapter 25; Technical Report D
Headline reach result	Swing Bridge 995 to 982 GL/yr, 1.3%	Technical Report D
Estuary criteria generally	Breached "regardless of climate or water management"	Technical Report D
Under dry climate	"high for all project scenarios because the likelihood is almost certain"	Technical Report D

C. The point

The Ecological Effects Assessment says the Lake Wellington flush occurs in 18 per cent of months under full uptake and a future climate. The EES says Lake Wellington inflow falls 7.2 per cent. The first is a statement about whether the lake gets flushed; the second is a statement about the difference between two scenarios in which it mostly does not. The Ecological Effects Assessment's maximum interval without freshwater at the wetland inlets rises from 249 days naturally to 613 to 630 days under every other scenario, and that duration statistic is what the current Ramsar limits turn on. The EES computes no drying-duration statistic anywhere. The Ecological Effects Assessment drew its conclusion from these same numbers: "more fresh water for the environment is required", not less.[883]

The marginal difference between scenarios is small because the Latrobe and Gippsland Lakes system is already past the point where marginal differences matter.

Sought: for the baseline and each project scenario, under medium, dry and post-1997 runoff behaviour: the percentage of months the 130 GL/month flush is achieved; the percentage of years it is not met; the percentage of days the 3,200 ML/day threshold is exceeded; the maximum interval that threshold is not achieved; the percentage of years the 15,000 ML/day wetland flush is achieved; and the probability distribution of continuous dry duration at Sale Common, Dowd Morass and Heart Morass against the 36 and 60 month limits. These are the State's own metrics on the same model platform. Producing them is a reporting task, not a new modelling task.

[883] Hale, J. et al. 2020, *Ecological Effects Assessment*, p. ii.

Table 3: The IESC's advice, the proponent's response, and what the finals show

This table draws on the IESC's advice of 10 December 2025, which reviewed the October 2025 drafts;[884] on Attachment VI, the proponent's response to that advice, prepared by AECOM and dated 5 August 2026, cited here by its Appendix A pagination;[885] and on the 2026 finals. The IESC found the documentation "generally good quality", the flow-ecology method adequate, the Ramsar risk assessment adequate and the surface water cumulative assessment reasonable.[886] The case lies in what it asked for and did not receive.

Scorecard

Outcome	IESC paragraphs
Done, substantially	5 (unconnected slow fill modelled, pit lake only); 13 (Morwell high-flow modelling validated);[a] 14 (flood scaling reworked);[b] 17 (flow results added for each scenario)[c]
Done, in a narrower form than asked	16 and 25a (dry results added to an attachment; body still medium); 23 (likelihood-boundary sensitivity, not harsher thresholds); 36a (gates now closed by default; no criteria in the EES, and the draft DMRP's test only pH, TDS and turbidity); 39 (qualitative description added)
Declined, with reasons	6 (baseline); 7 and 40 (connected option); 10 and 36c (groundwater top-up model run);[d] 15 (alternative sequences); 25b (system-wide approach kept after a further check); 26 (saline intrusion); 32 and 33 (cumulative under dry climate)
Answered by deferral	22 (Cooling Pond sediments, to EPA notices outside the EES); 25c (supply reduction left to Gippsland Water; "several" undefined); 34 and 37 (to the DMRP)
Contested outright	18, 19 and 20 (metals attributed to inputs; modelling beyond 100 years declined)

[a] ENGIE Hazelwood 2026, *Attachment VI*, Appendix C.
[b] Ibid., Appendix D.
[c] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.1.
[d] ENGIE Hazelwood 2026, *Attachment VI*, Appendix F.

Paragraphs not listed raise matters outside this submission's scope.

[884] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*.
[885] ENGIE Hazelwood 2026, *Attachment VI*.
[886] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 5; para 23; para 26; para 32.

Key rows

IESC para	What the IESC asked	Proponent's response	What the finals show
6 Baseline	Downstream impacts "only assessed for the additional 10 GL/y take"; the baseline "has not been assessed by the proponent"[a]	No "baseline scenario"; impacts assessed "relative to appropriate 'baseline conditions'"[b]	Rivers baseline unchanged: 20 GL/yr to RL +45 m, then 5 GL/yr;[c] baseline labelled "Unconnected Slow / Current"[d]
7, 40 Connection	Unconnected option strongly recommended	"there is a judgement to be made" on the benefits[e]	Connected option retained
15 Sequences	Test alternative inflow sequences	Declined: Moondarra "100% compliance"[f]	Technical Report C1 about 95% under dry;[g] top-up unavailable under high climate; the 2022 referral gave no guarantee and an 8 GL estimated minimum;[h] interrupted fill not modelled
16, 25a Dry case	Present dry results	Added to an attachment; body medium only "to limit the volume of material"[i]	Residual conclusions on medium
24 Fast fill	Justify the fast fill given "the high risks of impairing ecological resilience"	Entitlement already factored in	Fill rate changes pit lake TDS by 2 to 5 mg/L[j]
25 Tyers	System-wide approach inappropriate; define "several continuous years"	Impacts "already factored into the prevailing system"[k]	"critical consequences"[l] against "no permanent change";[m] trigger removed; drought plan unwritten; the further check found a higher Tyers rating "would not have changed the overall risk rating";[n] Gippsland Water decides any reduction
26 Saline intrusion	Key impact "in all scenarios";[o] the proponent's own rating, recorded at para 26, is a "critical ecological consequence", though "deemed unlikely"	"this risk is independent of the Hazelwood Rehabilitation Project"[p]	Project raises Lake Wellington salinity by about 0.67 ppt[q]
32, 33 Cumulative, dry	Climate and water use "act collectively and must be considered together"	"no additional information is available to inform this assessment"; dry run "not considered to be appropriate"[r]	Attachment IV says the Yallourn plan and Loy Yang entitlement were considered; no rivers cumulative scenario
34, 37 Management	"cannot comment on the adequacy of these plans"; feasibility after relinquishment	Deferred to the DMRP	Monitoring stops at the pit
39 River capture	Assess Morwell River Diversion failure in the unconnected option	Description said to be added to Chapter 4, s4.6.2.1[s]	Figure appears in Technical Report D. Attachment VI says the description was added to Chapter 4, s 4.6.2.1. The exhibited Chapter 4 has no s 4.6.2.1: s 4.6 divides into 4.6.1 to 4.6.4 only, and 4.6.2 contains the interconnection description, not a river-capture assessment.

IESC para	What the IESC asked	Proponent's response	What the finals show
22 Cooling Pond	Sediments and "unknown waste deposits" exposed by draining the Cooling Pond	Left to the EPA notices, "outside of the scope of the EES"[t]	Draining the Pond is a project component, and its effects on Eel Hole Creek are in scope [226]

[a] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, Table 2, p. 9.
[b] ENGIE Hazelwood 2026, *Attachment VI*, p. 3.
[c] ENGIE Hazelwood 2026, *Attachment IV*, Table 3-1, p. 19.
[d] ENGIE Hazelwood 2026, *Technical Report D*, Table 71, p. 181.
[e] ENGIE Hazelwood 2026, *Attachment VI*, p. 20.
[f] Ibid., p. 8.
[g] ENGIE Hazelwood 2026, *Technical Report C1*, p. 97.
[h] ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239*, p. 1.
[i] ENGIE Hazelwood 2026, *Attachment VI*, p. 10.
[j] ENGIE Hazelwood 2026, *Technical Report C1*, p. 142.
[k] ENGIE Hazelwood 2026, *Attachment VI*, p. 13.
[l] ENGIE Hazelwood 2026, *Technical Report D*, p. 233.
[m] Ibid., p. 235.
[n] ENGIE Hazelwood 2026, *Attachment VI*, p. 10.
[o] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, Summary, p. 2; Table 2, p. 9.
[p] ENGIE Hazelwood 2026, *Attachment VI*, p. 14.
[q] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.2, p. 4.
[r] ENGIE Hazelwood 2026, *Attachment VI*, p. 17.
[s] Ibid., p. 20.
[t] ENGIE Hazelwood 2026, Attachment VI, p. 12.

Table 4: The Ramsar assessment: 2010 limits against the revised limits

This table draws on Chapter 25 of the EES; Technical Report D uses the same 2010 framework. It also draws on Hale's 2024 Addendum to the Ecological Character Description for the Gippsland Lakes Ramsar Site, including its 2022 assessment. The Addendum was first published in 2023; the 2024 edition reflects the January 2024 changes to the threatened shorebird listings.[887] Each revised limit below appears in the Addendum, and the 2024 Management Plan assesses the site against them.

Limit	What the EES assessed against (2010)	Current limit	Consequence
P1 Hydrological regime	Wetting and flushing frequency and volume. EES: "Wetting and flushing frequency is maintained by the operation and maintenance of regulators and levees"[a]	"Sale Common shall not remain dry for more than 36 continuous months. Dowd and Heart Morass shall not remain dry for greater than 60 continuous months".[b] The 2010 values are "aspiration targets"	The current test is drying duration. The EES computes none, and sets drying aside as "the result of water management".[c] Its own baseline records Sale Common "was dry between 1997 to 2011"[d]
C2 Lake Wellington	No change from the 1980 typology. EES assesses change "from a permanent freshwater lake to a permanent saline lake"[e]	Typology test removed: Lake Wellington was misclassified; all four main lakes are permanent saline lakes[f]	The EES assesses against a classification the current description calls an error. FoGL does not argue loss of a freshwater character
C3 Freshwater wetlands	Freshwater marsh area and salinity	Habitat mosaic: no habitat more than 70% of wetland area for more than five successive years[g]	Sale Common open water 51% in 2016, 9% in 2020.[h] Not assessed
C4 Brackish wetlands (Dowd, Heart Morass)	Annual median salinity below 4 g/L; common reed area[i]	Salinity limit removed as "not justified"; habitat mosaic test instead[j]	The EES relies on a test that no longer exists and does not apply the one that does
C6 Waterbirds	Search counts; absence of listed species	Mean maximum counts against population thresholds for indicator species[k]	Different metric; not assessed
C7 Threatened frogs	Suitable habitat	Breeding recorded at least once every five years;[l] bell frog bred in Heart Morass in 2021[m]	Copper sedimentation, "the only pathway with a potential risk greater than low", reaches that breeding site[n]
C9 Native fish	Not assessed; fisheries resource value assessed instead	New critical component: all five life-history strategies represented[o]	The EES assesses a service the description has retired
P2 Waterbird breeding	Productivity decline	Successful breeding of indicator species at least once every five years[p]	Not assessed
S1 Threatened species	Grayling only	Grayling, plus annual presence of Australasian bittern, hooded plover and sharp-tailed sandpiper, and presence in two thirds of years of bar-tailed godwit, common greenshank and Latham's snipe[q]	Bittern critical habitat and the listed shorebirds not assessed at the site [126], [130]

[a] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-19.

[887] Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 3, pp. 10-15, and Table 4 (2022 assessment), pp. 16-19.

[b] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 14.
[c] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-14.
[d] Ibid., Chapter 25, p. 25-12.
[e] Ibid., Chapter 25, p. 25-18.
[f] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 10.
[g] Ibid., p. 11.
[h] Ibid., Table 4, p. 17.
[i] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-18.
[j] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 12.
[k] Ibid., p. 13.
[l] Ibid.
[m] Ibid., Table 4, p. 18.
[n] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-16.
[o] Hale, J. 2024, *Addendum to the Ecological Character Description*, p. 14.
[p] Ibid., p. 15.
[q] Ibid.

Concession. The 2022 assessment found all limits met or likely met.[888] FoGL's case does not depend on whether a change in character has occurred, though WGCMA's 2022 review found Lake Wellington's 2010 limit exceeded before the Addendum removed it [105]. Its point is that the EES did not test the project against the current limits, or compute the quantities they turn on.

[888] Ibid., Table 4, pp. 16-19; East Gippsland Catchment Management Authority 2024, *Ramsar Site Management Plan*, p. 35.

Table 5: The alternatives' full criteria scores (Attachment I, Table ES-4)

Source: Attachment I. Scores 1 to 5, five most favourable; equal weighting.

Criterion	1	4	5	6	7	9	10	11
Landform stability and movement	1	1	4	4	2	2	2	2
Erosional stability	1	1	4	4	2	2	2	2
Fire risk	1	2	5	5	2	2	2	2
Groundwater quality	4	3	3	3	2	3	3	3
Groundwater resources	1	1	5	5	2	3	3	1
Pit lake water quality	3	2	3	3	2	3	3	2
Surface water quality, off-site	3	3	4	3	4	2	2	3
Surface water resources	**5**	**5**	**2**	**2**	**3**	**5**	**5**	**4**
Ecology	2	2	3	3	3	2	2	3
Cultural heritage (tangible)	2	2	3	3	3	1	1	3
Cultural heritage (intangible)	2	2	2	2	2	3	3	1
Community amenity and wellbeing	1	1	4	4	2	2	2	3
Greenhouse gas emissions	2	2	4	4	2	1	2	3
Future land use	2	2	4	5	4	4	4	2
Cost (capex and opex)	1	2	5	4	5	1	1	3
Approvals processes	2	4	3	3	3	2	2	3
Total	**33**	**35**	**58**	**57**	**43**	**38**	**39**	**40**

Legend. 1: rehabilitated void. 4: partial pit lake to RL +8 m. 5: full pit lake to RL +45 m from surface water reservoirs. 6: full pit lake to RL +45 m, flow-through with Morwell flood flows. 7: full pit lake to RL +45 m from the Gippsland Water Factory. 9: full pit lake from a new coastal desalination plant. 10: full pit lake from the Eastern Treatment Plant. 11: partial pit lake to RL +34 m.

Table 6: Cumulative effects: modelled, then subtracted out

The rivers model was built to simulate Hazelwood "individually and cumulatively" with Yallourn and Loy Yang.[889] Both other mines' filling is placed in the baseline of every rivers run, so their effect cancels out of every reported result. No separate cumulative scenario is reported for rivers and wetlands.

A. The other mines are modelled below their own figures

Item	Rivers model	The mine's own or gazetted figure
Loy Yang fill take	25 GL/yr, mid-2035 to 2062[a]	35.8 GL/yr maximum under the December 2025 entitlement[b]
Loy Yang fill take, other model	25 GL/yr in the rivers model	37 GL/yr in the groundwater cumulative model, within 57 GL/yr in total[c]
Yallourn permanent top-up	1 GL/yr from 2055[d]	2.61 to 4.66 GL/yr from the Latrobe, per Yallourn's draft DMRP[e]
Loy Yang permanent top-up	5 GL/yr, 2063 to 2089[f]	No right to take after 1 December 2065 at the latest[g]
Time limit	Both mines modelled taking water to 2089	LVRRS limit of 30 years or 2065, which Attachment IV calls "consistent" with its modelling[h]
Loy Yang groundwater after closure	Rivers model moves straight from operation (groundwater offsets surface use; 5 GL/yr operational discharge) to filling[i]	Groundwater model's no-fill case discharges 20 GL/yr to the Latrobe via Traralgon Creek after closure;[j] the rivers model never runs that case
Hazelwood	20 GL/yr baseline, 30 GL/yr project, 5 to 6 GL/yr top-up in perpetuity, no seasonal window, no passing-flow floor[k]	No entitlement conditions; a commercial supply agreement

[a] ENGIE Hazelwood 2026, *Attachment IV*, Table 4-4, p. 31.
[b] Ibid., p. 36, note; Minister for Water 2025, *Loy Yang mine rehabilitation bulk entitlement, Gazette S 703*.
[c] ENGIE Hazelwood 2026, *Attachment IV*, pp. 35-36.
[d] Ibid., Table 4-2, p. 29.
e Ibid., p. 34, note; EnergyAustralia 2025, *Draft Yallourn Declared Mine Rehabilitation Plan*, Table 8-21, p. 272.
[f] Ibid., Table 4-4, p. 31.
[g] Minister for Water 2025, *Loy Yang mine rehabilitation bulk entitlement, Gazette S 703*, cl 4-5.
[h] ENGIE Hazelwood 2026, *Attachment IV*, p. 37.
[i] Ibid., Table 4-4, p. 31.
[j] Ibid., Table 4-3, p. 30.
[k] Ibid., Tables 3-1, 3-3.

[889] ENGIE Hazelwood 2026, *Technical Report A*, Table 6-5, p. 46.

The other two mines are modelled with the LVRRS conditions and Hazelwood without them. The cumulative defence then relies on those conditions, which Hazelwood is outside.

B. Three timelines for the same two mines

Source	Yallourn fill	Loy Yang fill
Rivers model	mid-2028 to 2054	mid-2035 to 2062
Groundwater cumulative model	mid-2031 to 2059	mid-2038 to 2062
Chapter 9	2031 to 2049	2038 to 2061

On any of them, Yallourn and Loy Yang fill together for well over a decade, and Hazelwood is on permanent top-up throughout.

C. Groundwater, for contrast

The groundwater assessment did report a cumulative scenario for all climate scenarios, though it excluded Loy Yang's permanent groundwater top-up. The contrast is not "modelled versus not modelled" but "reported as a cumulative result versus absorbed into the baseline". Told by the IESC that climate and water use "act collectively and must be considered together",[890] the proponent said "no additional information is available to inform this assessment",[891] while Attachment IV says the Yallourn plan and Loy Yang entitlement were considered.

[890] Independent Expert Scientific Committee 2025, *Advice IESC 2025-162*, para 32.
[891] ENGIE Hazelwood 2026, *Attachment VI*, p. 17.

Table 7: The EES against itself

Each row sets one part of the EES, the draft DMRP or the Consultation Report against another; the last seven rows set what the Consultation Report told the community against the final EES. The paragraph references show where the point is argued.

Issue (paragraph)	One part says	Another part says
Management of the pit lake [205]	The full pit lake is the preferred landform for "passive post closure management"[a]	Its inlet and outlet control "will require active management and maintenance into perpetuity"[b]
Equilibrium ([205])	Hydrogeological equilibrium is a state in which "surface water inflows are not required"[c]	Top-up of 2.7 to 8.2 GL is needed in most years and increases with time[d]
The bores ([48])	Bores "will be decommissioned and rehabilitated (sealed)" once filling is achieved,[e] and the pit lake would "obviate a requirement for ongoing groundwater pumping into perpetuity"[f]	Pumped M2 groundwater is the second top-up source,[g] and the bores are "likely to remain 'in service'" for at least ten years after filling[h]
The inflow limit ([65]; Q7)	The connected option takes Morwell River flood flows averaging about 4 GL/yr during the fill[i]	A "basal flow of 2.5GL of water per annum"[j]
Discharge [82]	"If water quality does not achieve the stipulated background criteria, then there will be no interconnection"[k]	"Controlled release" is a contingency for poor pit lake water quality[l]
Pit lake level while the gate is closed [82]	A constant RL +45 m is "critical for counteracting groundwater pressures"[m]	The pit lake acts as a "retarding basin" and rises above RL +45 m[n]
Monitoring the level [198], [205]	Maintaining the pit lake at RL +45 m is a critical control,[o] and top-up is triggered at RL +44.5 m[p]	Pit lake level monitoring is marked "No" after closure[q]
When retention began ([25]; Q5)	Water has been retained in the void since late 2021	"Retention of water volumes (in absence of final landform approval)" runs from 2017[r]
The baseline [24], [26]	"There is no 'baseline scenario' against which the changes arising from the project have been compared"[s]	The rivers baseline already contains 20 GL/yr from Moondarra, and Technical Report D labels its baseline column "Unconnected Slow / Current"[t]
Supply [43]	Moondarra meets the 20 and 30 GL/yr demands "with 100% compliance"[u]	Under the 2040 high (dry) scenario "the annual average supply would be 18.5 GL/yr which is less than the target rate of 20 GL/yr"[v]
Groundwater [47]	The renewed licence provides groundwater "as a source of water for pit lake filling"[w]	Filling beyond safe and stable levels "is not an approved use of groundwater within the renewed licence"[x]
Salinity's cause ([110]; Annex 1, section 1.2)	"The vast majority" of Lake Wellington's 1977 to 2019 increase is attributed to inflow[y]	The long-term trend is attributed to the permanent entrance
The Ramsar limits ([95])	The site is assessed against the 2010 limits of acceptable change	Technical Report H1 cites the 2023 Addendum that revised them
The six months ([108]; Annex 1, section 1.4)	The project's roughly 0.7 ppt increment accelerates salinisation "by less than six months"[z]	A 0.09 ppt rise over the filling period "would 'naturally' take place in less than 6 months"[aa]
Nutrients in the pit lake ([79])	Only four of the 24 indicators modelled, all of them metals, exceed the 95 per cent guideline values, and only those four are risk-assessed[ab]	Ammonia, nitrate and total nitrogen are at or above their guideline values, and phosphorus and chlorophyll exceed theirs, in every scenario
Vegetation removed ([137])	The community was told "Approximately 16 – 17 ha of vegetation will need to be removed", and that design changes avoided "0.76 ha of native vegetation" and "26 trees"[ac]	25.78 ha removed, and 23 Strzelecki Gums avoided[ad]

Issue (paragraph)	One part says	Another part says
The downstream indicator ([83])	"Chromium was identified as the only indicator" of downstream concern[ae]	"copper sedimentation in the lower Latrobe wetlands was the only pathway with a potential risk greater than low"[af]
Flood harvesting ([68])	"no negative impacts have been identified from using flood waters in this way"[ag]	Under the wet climate, overbank days at Thoms Bridge fall by 40 per cent, and the loss "has not been further assessed" [68]
Other sources of water (Part F)	"A proposed mitigation measure … is to work with stakeholders to investigate any other sources of water"[ah]	The water measures in the Environmental Management Framework are WRMM01 to WRMM03 only, and none is such a measure[ai]
Cumulative impacts ([71])	Cumulative impacts are referred to "Chapter 26: Cumulative impacts"[aj]	Chapter 26 is the Environmental Management Framework
Climate ([51])	Ecological thresholds are not breached "Under a medium climate change scenario"[ak]	The IESC asked for the dry case, and the dry results were kept out of the conclusions [51]
Public data ([10])	Feedback that "ongoing testing should be made public"[al]	Datasets will be "accessible by ENGIE Hazelwood and its contractors"[am]

[a] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 6, p. 1.
[b] Ibid., Chapter 6, p. 13.
[c] Ibid., Chapter 15, p. 6.
[d] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 10, p. 10-22; ENGIE Hazelwood 2026, *Technical Report C1*, p. 116.
[e] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 8, p. 6.
[f] ENGIE Hazelwood 2022, *EPBC Act Referral 2022/09239*, p. 1.
[g] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-21; ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Appendix C, WQMC02.
[h] ENGIE Hazelwood 2022, *Letter to the Commonwealth Department, 6 October 2022*.
[i] ENGIE Hazelwood 2026, *Technical Report D*, p. 4.
[j] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Appendix B, CCPS 1107.
[k] Ibid., Appendix I, Risk 36.
[l] Ibid., Appendix C, WQMC01, p. 10; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 8, Table 8-3, p. 8-13.
[m] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 4, p. 4-22.
[n] Ibid., Chapter 4, p. 4-52.
[o] ENGIE Hazelwood 2025, *Draft Declared Mine Rehabilitation Plan*, Chapter 14, p. 5.
[p] Ibid., Appendix C, WQMC02, p. 10.
[q] Ibid., Chapter 15, Table 15.6, pp. 14, 16.
[r] Ibid., Chapter 16, Table 16.2, p. 6.
[s] ENGIE Hazelwood 2026, *Attachment VI*, p. 3.
[t] ENGIE Hazelwood 2026, *Attachment IV*, Table 3-1, p. 19; ENGIE Hazelwood 2026, *Technical Report D*, Table 71, p. 181.
[u] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-29; ENGIE Hazelwood 2026, *Attachment VI*, p. 8.
[v] ENGIE Hazelwood 2026, *Technical Report B*, p. 99.
[w] ENGIE Hazelwood 2026, *Technical Report E*, p. 26.
[x] Southern Rural Water 2025, *Statement of Reasons, groundwater licence WLE091664*, p. 4.
[y] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.2, p. 4.
[z] Ibid., p. 204.
[aa] Ibid., Attachment 3.2, s 5.3, p. 12.
[ab] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 11, p. 11-35.
[ac] ENGIE Hazelwood 2026, *Attachment V: EES Consultation Report*, p. 31.
[ad] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 15, pp. 15-1, 15-25.
[ae] ENGIE Hazelwood 2026, *Attachment V: EES Consultation Report*, pp. 25, 26, 32.
[af] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-16.
[ag] ENGIE Hazelwood 2026, *Attachment V: EES Consultation Report*, p. 27.
[ah] ENGIE Hazelwood 2026, *Attachment V: EES Consultation Report*, p. 22.
[ai] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 26, Table 26-6.
[aj] ENGIE Hazelwood 2026, *Attachment V: EES Consultation Report*, p. 23.
[ak] ENGIE Hazelwood 2026, *Attachment V: EES Consultation Report*, pp. 22, 27.
[al] ENGIE Hazelwood 2026, *Attachment V: EES Consultation Report*, p. 38.

[am] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 26, p. 26-51.

Table 8: Listed species and the Commonwealth's advice

The statuses are those that apply to this decision (s 158A; [15]); later listings are noted. Where a row cites the Commonwealth's conservation advice or recovery plan, the habitat entry has been checked against the copy FoGL supplied. Species the Protected Matters Search returns for the Lakes that are seabirds, marine turtles or terrestrial species the water effects do not reach are left out.a

Species (status for this decision)	Habitat and sensitivity in the Commonwealth's advice	Relevance downstream	Paragraph
Australasian Bittern (Endangered)	"mainly in freshwater wetlands and, rarely, in estuaries or tidal wetlands"; water diversion "The major factor in the decline"; elevated salinity "may directly impact on Australasian Bittern survival and breeding success"[b]	The strongest receptor: the lower Latrobe wetlands are its critical habitat, and the Lake Corringle reedbeds were lost to saline back flow	[126], [132], [114]
Australian Painted Snipe (Endangered)	"shallow freshwater (occasionally brackish) wetlands"; main threat "the loss and degradation of wetlands, through drainage and the diversion of water for agriculture and reservoirs"[c]; the 2022 recovery plan rates changes to water regimes a Very High risk[p]	One record at the site, at Sale Common in 1970 [131]; a nomad that needs freshwater marsh in drought	[130], [131]
Australian Grayling (Vulnerable)	Will not release eggs without spawning flows; the lower Latrobe is an important river; Latrobe populations modelled to be lost by 2050 or 2070[d]	Spawns February to May on high flows; juveniles return in spring	[134]
Dwarf Galaxias (Vulnerable; Endangered from 15 November 2023)	Shallow freshwater habitats; connection to creeks and rivers "during flooding events is critical"; an annual species[e]	Recorded in the Morwell River Wetlands; the connection restricts movement between wetlands	[135]
Latham's Snipe (migratory; Vulnerable from 5 January 2024)	Important habitat "must be avoided"; present August to early March; "can also occur in habitat with saline or brackish water"; "abandons seasonally drying wetlands"[f]	Drying matters more than salinity	[141], [142]
Swamp Everlasting (Vulnerable)	"sedge-swamps and shallow freshwater marshes"; Gippsland records include Perry Bridge and Saplings Morass[g]	A Ramsar criterion 2 species	[136]
Dwarf Kerrawang (Endangered)	Victorian populations in the Rosedale, Stradbroke and Providence Ponds area grow in "ephemeral wetlands and lake margins", threatened by drying "through reduced flooding"[h]	A Ramsar criterion 2 species	[136]
River Swamp Wallaby-grass (Vulnerable)	"swamps, lagoons, billabongs and dams"; known near Rosedale; "ecologically sustainable water flows" to its wetlands to be retained or reintroduced[i]	Freshwater wetlands of central Gippsland	[136]
Growling Grass Frog, Litoria raniformis (the Commonwealth's "southern bell frog"; Vulnerable)	Water through the September to February breeding season, and refuges that hold water in drought; altered hydrology a Very High risk; "does not occur in waterbodies where salinity levels exceed 7.0 ms/cm for lengthy periods", though slightly saline water lowers its disease risk; the significant impact guidelines count "any changes to timing, duration or frequency of flood events" that lower habitat quality[q]	Bred at Clydebank Morass, in the site, in 2022; Sale Common, where it is "regularly supported"; the Ramsar plan rates increased salinity a High risk to threatened frogs	[129], [130], [131]

Species (status for this decision)	Habitat and sensitivity in the Commonwealth's advice	Relevance downstream	Paragraph
Green and Golden Bell Frog (Vulnerable)	"Requires surface water spring to summer for breeding"; tolerates brackish water[r]	Bred in Heart Morass in 2021, the copper receptor. Drying, not salinity, is the pathway	[130], [131]
Martin's Toadlet (not listed at the decision; Endangered from 15 November 2023)	"moderately sized permanent or semipermanent swamps and ponds surrounded by woodland or coastal scrub"; range "includes sites within the Ramsar listed Gippsland Lakes", with a population at Dutson Downs; if the hydrology changes, "extirpation is possible"[m]	Not mentioned in the EES. Reached where its swamps depend on the river or lake rather than local rain	[136]
Swamp Skink (not listed at the decision; Endangered from 23 March 2023)	"densely vegetated freshwater and saltwater wetlands ... which have natural hydrological regimes"; not to be assumed absent from "marginal habitat"[n]	On site: the Swamp Scrub at the Yinnar Road culvert, where groundwater falls; downstream: fringing wetlands and saltmarsh	[136]
Glossy Grass Skink (not listed at the decision; Vulnerable from 20 February 2026[a]; FFG Endangered from June 2021)	"densely vegetated, humid microhabitats typically near creeks, swamps, lakes and saltmarshes" (Chapter 15, p. 15-19)	On site: the EES says its local population may be significantly affected	[139]
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains (Critically Endangered)	Rain-fed: "not dependent on overbank flooding from riverine systems"; the listing excludes riverine, floodplain and estuarine wetlands, and wetlands dominated by taller graminoids such as Typha spp. A part of the community, the Herb-rich Plains Grassy Wetland (West Gippsland) Community, is listed under the FFG Act[j]	Not a receptor for changes in river flow or estuary salinity. On site, the EES finds that FFG community in the study area (Chapter 15, p. 15-11) but the national community absent (Table 25-7), without saying why the occurrences fall outside it	—
Swamp Fireweed (Vulnerable)	Known from western Victoria, south-eastern South Australia and Tasmania[k]	Not a receptor: the search result is a range model, with no Gippsland record	—
Australian Mudfish (not listed at the decision; Endangered from 28 August 2026; FFG-listed since 1991, Endangered)	Swampy, often seasonally drying habitats; Victorian records run from Wilsons Promontory westward, with Wilsons Promontory and the Otway Ranges "the main stronghold areas"[o]	Not a receptor: no Latrobe or Gippsland Lakes record	—
Southern Giant Burrowing Frog (the EES's "Giant Burrowing Frog"; Vulnerable as Heleioporus australiacus at the decision; the subspecies Endangered from 5 March 2025; FFG-listed as threatened on the 1991 recommendation, before the 2021 split)	A forest frog that breeds in "soaks or pools within first or second order streams"; "All Victorian records of the species have been from eucalypt forest of various types", and it "appears to be absent from cleared farmland"[l]	Unlikely to be reached by the water effects, though Chapter 25 lists it at Heart Morass, Dowd Morass and Lake Wellington (p. 25-15)	—

[a] Department of Climate Change, Energy, the Environment and Water 2026, *Protected Matters Search Tool report*, 10 November 2026 (Lake Victoria to Sale Common).

[b] Threatened Species Scientific Committee 2019, *Conservation Advice: Botaurus poiciloptilus, Australasian Bittern*, pp. 3-5.

[c] Department of Sustainability, Environment, Water, Population and Communities 2013, *Approved Conservation Advice for Rostratula australis (Australian painted snipe)*, p. 2.

[d] Threatened Species Scientific Committee 2021, *Conservation Advice: Prototroctes maraena, Australian Grayling*, pp. 5-6, 8; Backhouse, G., Jackson, J. and O'Connor, J. 2008, *National Recovery Plan for the Australian Grayling*, p. 4.

[e] Department of Climate Change, Energy, the Environment and Water 2023, *Conservation Advice for Galaxiella pusilla (dwarf galaxias)*, pp. 4-5, 7.

[f] Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Gallinago hardwickii (Latham's snipe)*, pp. 6, 8.

[g] Department of Agriculture, Water and the Environment 2021, *Conservation Advice for Xerochrysum palustre (swamp everlasting)*, pp. 4, 6.

[h] Carter, O. and Walsh, N. 2010, *National Recovery Plan for the Dwarf Kerrawang Rulingia prostrata*, pp. 4-5.

[i] Department of the Environment, Water, Heritage and the Arts 2008, *Approved Conservation Advice for Amphibromus fluitans (River Swamp Wallaby-grass)*, pp. 1-2.

[j] Department of Sustainability, Environment, Water, Population and Communities 2012, *Approved Conservation Advice for Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains*, pp. 1-2.

[k] Department of the Environment, Water, Heritage and the Arts 2008, *Approved Conservation Advice for Senecio psilocarpus (Swamp Fireweed)*, p. 1.

[l] Department of Climate Change, Energy, the Environment and Water 2025, *Conservation Advice for Heleioporus australiacus flavopunctatus (southern giant burrowing frog)*, p. 6; *List of Threatened Species Amendment (420) Instrument 2025* (Cth), items 1 and 2; Department of Sustainability and Environment 2003, *Action Statement No. 61: Giant Burrowing Frog Heleioporus australiacus* (first published 1994), pp. 1-2.

[m] Department of Climate Change, Energy, the Environment and Water 2023, *Conservation Advice for Uperoleia martini (Martin's toadlet)*, pp. 1-2, 4, 6.

[n] Threatened Species Scientific Committee 2021, *Consultation on Species Listing Eligibility and Conservation Actions: Lissolepis coventryi (swamp skink)*, p. 13; listing date: State Wide Integrated Flora and Fauna Teams, *Swamp Skink* species page.

[o] Threatened Species Scientific Committee 2025, *Consultation on Species Listing Eligibility and Conservation Actions: Neochanna cleaveri (Australian mudfish)*, p. 10; status: note a.

[p] Commonwealth of Australia 2022, *National Recovery Plan for the Australian Painted Snipe (Rostratula australis)*, pp. 12, 20.

[q] Department of Climate Change, Energy, the Environment and Water 2024, *Conservation Advice for Litoria raniformis (southern bell frog)*, pp. 8-10, 17; Clemann, N. and Gillespie, G.R. 2012, *National Recovery Plan for the Southern Bell Frog Litoria raniformis*, p. 7; Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, p. 26.; Department of the Environment, Water, Heritage and the Arts 2009, *EPBC Act Policy Statement 3.14: Significant impact guidelines for the vulnerable growling grass frog (Litoria raniformis)*, p. 10; Hale, J. 2024, *Addendum to the Ecological Character Description*, Table 4, p. 18

[r] Hale, J. and Boon, P. 2022, *Understanding and responding to changed conditions in Lake Wellington and fringing wetlands*, p. 15.

Annex 1. The receiving water: Gippsland Lakes salinity, condition and monitoring, 1990 to 2026

The EES assesses the project's effect on the Gippsland Lakes as an increment. In Lake Wellington, mean salinity rises by "roughly 0.7 ppt", and the project "will accelerate a several-decades long process by less than six months".[892] Chapter 25 puts it at "only a few months".[893] The EES does not describe the condition or trajectory of the water that increment is added to, or what the monitoring it relies on can detect. This annex does both, from public data. It does not model the project's effect. It describes the receiving system, and tests the EES's own figures against the observed record.

1.1 Source and method

Data. The source is EPA Victoria's Marine Fixed Site Network data for the Gippsland Lakes, which EPA marks as validated and peer reviewed.[894]

- The release holds 3,505 records (1,883 surface and 1,622 bottom).
- In 514 cases, mostly 2012 to 2018, one sample appears as two records, a laboratory row and a sensor row. These are combined by averaging, giving 2,984 samples, 2,857 of them with a salinity value.
- One surface round (25 June 2019) is excluded as instrument error. It read 0.0 to 0.4 PSU at every site, against 20 to 31 PSU thirteen days earlier. Excluding it changes no trend result.

Site	Location
Lake Wellington	Wooden pile off Tucker Point
Lake Victoria	Deep water channel off Loch Sport
Lake King North	Midway between Point Dawson and Point King
Lake King South	Channel off Point Scott
Shaving Point	Lake King channel, nearest the entrance
Lake Reeve East and West	Added 2020; 88 surface records; excluded from trend tests

Inflow. River inflow is gauged daily flow from the Victorian Water Measurement Information System.[895]

- For Lake Wellington: Latrobe River at Rosedale, Thomson River at Bundalaguah (which includes the Macalister) and Avon River at Stratford.
- For Lakes Victoria and King: those three plus Mitchell River at Glenaladale, Tambo River downstream of Ramrod Creek and Nicholson River at Deptford.
- Rosedale lies downstream of the Tyers and Morwell confluences, so the project's effect on Latrobe flows enters the inflow index there. Technical Report D (catchments, rivers and wetlands) reports the project's flow changes at the same gauge.

Trend method.

- Each indicator is first adjusted for inflow: each sample is compared with the mean daily inflow over the preceding 30 to 365 days, the window that best explains it, and the part explained by inflow is removed.
- The remainder is tested with a seasonal Mann-Kendall test on quarterly medians, corrected for correlation between seasons, with a seasonal Sen slope.

[892] ENGIE Hazelwood 2026, *Technical Report D*, s 8.2.3, p. 204.
[893] ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-15.
[894] Environment Protection Authority Victoria 2026, *Gippsland Lakes Water Quality Data 1990-2026*, extracted to 14 May 2026.
[895] Department of Energy, Environment and Climate Action 2026, *Victorian Water Measurement Information System*.

- Of 22 flow-adjusted tests, the results relied on are those that survive a Holm correction for multiple testing, or that hold under every sensitivity check.
- The sensitivity checks are: fixed windows, alternative reconstructions of early Thomson flow, a 1997 start, the validated record from 2000, exclusion of the wet years since 2020, and a multi-river model.
- A block bootstrap that resamples whole years tests for year-to-year persistence.

Annex 2 sets out the methods and equations, and which figures the lodged script reproduces.[896]

Conventions. Financial years run July to June and are labelled by their end year where tabulated (2025/26 = FY2026). 2025/26 is partial: July 2025 to May 2026, six samples per site. Salinity is reported in PSU; at these salinities PSU and the EES's ppt are treated as equivalent.

What this record can and cannot support. The EPA record is large: more than 3,500 records, close to 3,000 samples, at seven sites over 36 years. The methods in this annex are chosen to make the most of it. Adjusting for inflow removes most of the year-to-year variation in salinity; the seasonal trend test allows for correlation between seasons; the block bootstrap allows for persistence from year to year; the Holm correction guards against chance results among the 22 tests; and every result is rerun under alternative assumptions (Annex 2). Results that survive all of these are robust in direction and approximate in size. FoGL recognises the limits of the sampling itself:

- **Space.** Each lake is represented by one fixed site (three in Lake King).
- **A shallow lake.** Lake Wellington averages about 2.6 m deep[897] and can be fully mixed after a storm, so a single sample can reflect a passing event.
- **Time.** Sampling has been monthly at best, is now every second month (section 1.7), and is not timed to a consistent state of tide.
- **The rivers.** River water quality is sampled less regularly, and for fewer parameters, than the lakes, so the nutrient and salt loads entering the Lakes are hard to estimate; and most 1990s flow records for the western rivers are unedited or unvalidated (section 1.10).

These limits widen the uncertainty around the size of the trends, particularly at Lake Wellington, more than they put the direction of the main results in doubt. They are also the case for better sampling: at least twice monthly, at the same state of tide, with more sites in Lake Wellington (section 1.7; [223](a)).

The limits cut the other way too. The EES's own account of Lake Wellington's water quality rests on limited monitoring at one point between 2013 and 2016, and its "less than six months" figure comes with no calculation in the main report (section 1.4). Professor Max Finlayson told the Parliament's Ramsar wetlands inquiry that for the Gippsland Lakes "there are large gaps in data", and that good monitoring plans have not translated into implementation.[898] The incomplete record reinforces the need for more monitoring, and for protection that acts on flows rather than waiting for lake data to show a change (section 1.8; [200], [223](a)).

1.2 A system becoming more marine

Surface salinity	Decade median (PSU) 1990-99	2000-09	2010-19	2020-26	Flow-adjusted trend (PSU per decade)	p	Survives Holm correction
Lake Wellington	4.2	11.6	9.9	6.3	+0.74	0.013	No (holds under every sensitivity check)

[896] Friends of the Gippsland Lakes 2026, *Analysis script fogl_annexA_analysis.py and results fogl_annexA_results.md*.
[897] Cook, P.L.M. et al. 2016, "Blooms of cyanobacteria in a temperate Australian lagoon system", p. 3679.
[898] Finlayson, C.M. 2019, *Submission no. 456 to the Public Accounts and Estimates Committee Inquiry into the Victorian Auditor-General's Report No. 202: Meeting Obligations to Protect Ramsar Wetlands*, pp. 1, 4.

Surface salinity	Decade median (PSU) 1990-99	2000-09	2010-19	2020-26	Flow-adjusted trend (PSU per decade)	p	Survives Holm correction
Lake Victoria	16.6	22.5	21.2	19.5	+1.34	<0.001	Yes
Lake King North	18.5	24.5	24.5	22.2	+1.54	<0.001	Yes
Lake King South	18.8	24.5	24.9	22.1	+1.66	<0.001	Yes
Shaving Point	18.8	24.2	25.4	22.7	+1.85	<0.001	Yes

Shading as in Annex 2, Table 2.2: blue = survives the Holm correction and holds under every sensitivity check; light blue = holds under every sensitivity check but does not survive the Holm correction.

- **River inflow is the dominant control.** Inflow over the preceding two to six months explains 68 to 79 per cent of the variation in surface salinity.
- **Salinity is rising beyond what inflow explains.** For the same inflow, the lakes' salinity is higher than in the 1990s by about 1.8 to 1.9 PSU at Lake Wellington, 3.0 PSU at Lake Victoria and 3.3 PSU at Lake King North (mean flow-adjusted residual for 2016 to 2025 against 1990 to 1999).
- **The rise does not depend on the 1990s flow records.** Most of those records for the western rivers are unedited or unvalidated. On the validated record from 2000 alone, flow-adjusted salinity still rises at every site, by about 1.2 to 1.9 PSU a decade ($p = 0.008$ to 0.041).
- **The rise reaches the bottom water.** Bottom water at Lake King North is rising about 1.3 PSU a decade.[899]
- **The water column is becoming uniformly marine.** At Lake Victoria, the difference between bottom and surface salinity is falling about 1.1 to 1.2 PSU a decade.[900] The result is not significant when the wet years since 2020 are excluded ($p = 0.09$).
- **Stratification is the normal state in Lake King.** The median bottom-minus-surface difference is 4.5 PSU at Lake King North, 7.2 at Lake King South and 9.7 at Shaving Point, and one profile in ten reaches about 15 to 19 PSU.
- **Salinity has rebounded since the wet years.** The 2025/26 medians to May are 12.0 PSU at Lake Wellington, 22.3 at Lake Victoria, 26.3 at Lake King North and 26.8 at Shaving Point. Lake Wellington has exceeded its 6 PSU threshold in both 2024/25 and 2025/26.[901] Lake King North is above its 26 PSU threshold so far in 2025/26.
- **The State's Environment Reports find no sustained change in Lakes King and Victoria.** The 2021 Technical Report's moving averages used raw salinity to 2021. The 2024 Report repeats the finding, describing Lake King's salinity as having "remained largely the same over the past three decades" and water quality in Lakes King and Victoria as stable,[902] on raw moving averages through 2022/23 that include three wet years. Neither adjusts for inflow. Allowing for inflow, and on a record to 2026, the rise there appears; without that allowance, wet and dry years mask it, as section 1.4 shows for Lake Wellington. Both reports rate Lake Wellington's salinity "poor", and the 2024 Report finds a longer term rising trend there despite the wet years.[903] Gell and Finlayson made the same criticism of the draft Ramsar plan, which

[899] $p < 0.001$; survives Holm correction.
[900] $p < 0.001$; survives Holm correction.
[901] East Gippsland Catchment Management Authority 2024, *Environment Report 2024*; the 6 PSU threshold is the 80th percentile of 1986-88.
[902] Ibid., pp. 30, 33.
[903] Ibid., p. 30.

takes salinity no further than plotting it against wet and dry years and lists no independent analysis of salinisation among its knowledge gaps.[904]

Cause. The lake record cannot attribute the rise that inflow does not explain. What remains is consistent with sea-level rise, changed entrance conditions or reduced ungauged inflows, acting together. Two things matter for this EES.

- Both mechanisms the EES names are visible in the data. Technical Report D's regression attributes "the vast majority" of Lake Wellington's 1977 to 2019 increase to inflow.[905] Chapter 25 attributes the long-term trend to the permanent entrance. On the public record, inflow governs year-to-year salinity, and a marine-side rise is under way regardless of inflow.
- Neither attribution rests on modelling that could separate the two. The most recent hydrodynamic modelling of the Lakes, prepared by Port and Coastal Solutions in 2023 for Gippsland Ports' sea-dumping permit, models present-day entrance conditions only, so it cannot estimate the effect of past entrance changes. Its report notes that it under-predicts bottom-water salinity by up to about 4 PSU, and it reports no skill statistic for salinity.[906] Gell and Finlayson's submission on the draft Ramsar plan called for an assessment that partitions out the effect of inflows. They noted that Lake King's salinity was generally below average in the dry years from 1986 to 1998 but above average in the wetter years since 2010, except during the La Niña floods, and linked the question to the larger tidal prism since the entrance was deepened in 2008.[907] The flow adjustment here is a first step; an independent model validated against EPA's bottom-water record is the tool the question needs.
- Of the drivers, freshwater inflow is the only one within management control, and it is the one the project reduces. Marine pressure on the system is projected to accelerate.[908] The project withdraws freshwater from a system already moving toward marine condition from the other side.

1.3 Lake Wellington follows the Latrobe

Year	Latrobe River at Rosedale, annual flow (GL)	Lake Wellington surface salinity, median (PSU)	Lake Wellington chlorophyll-a, median (µg/L)
2018/19	267	17.2	15.5
2019/20	688	13.9	21.0
2020/21	750	6.9	9.6
2021/22	843	1.0	6.0
2022/23	1,002	3.1	8.7
2023/24	702	4.9	7.8
2024/25	445	11.0	12.0
2025/26 (to May)	359	12.0	14.5

Rosedale flow is the time-weighted daily mean, summed by financial year. The median Rosedale flow for 1990/91 to 2024/25 is 507 GL; the lowest year was 2006/07, at 176 GL. The EES puts the Latrobe's share of Lake Wellington's freshwater inflow at about 57 per cent on average, and greater in drier years.[909] On the gauged flows used here (Rosedale, Bundalaguah and Stratford, 1990/91 to 2024/25), the Latrobe supplied 52 per cent overall, 62 per cent in the driest quarter of years (55 to 76 per cent) and 49 per cent in the wettest. Its share falls as total inflow rises (Spearman $\rho = -0.56$, $p <$

[904] Gell, P.A. and Finlayson, C.M. 2024, *Submission on the draft Ramsar Site Management Plan*, p. 4.
[905] ENGIE Hazelwood 2026, *Technical Report D*, Attachment 3.2, p. 4.
[906] Port and Coastal Solutions 2023, *Gippsland Lakes Ocean Access Program: Water level and salinity modelling and analysis*.
[907] Gell, P.A. and Finlayson, C.M. 2024, *Submission on the draft Ramsar Site Management Plan*, pp. 2-3. Kirono, D. et al. (CSIRO) 2022, *Vulnerability of the Gippsland Lakes Ramsar Site*, pp. 62-63; [110].
[909] ENGIE Hazelwood 2026, *Technical Report D*, p. 175; ENGIE Hazelwood 2026, *Environment Effects Statement*, Chapter 25, p. 25-15.

0.001). Rosedale sits above some lower Latrobe tributaries, which may account for the gauged share being lower than the EES's figure. The share is not always higher in dry years: in 2006/07 the Thomson and Avon carried more than the Latrobe, which supplied 22 per cent.

- **Lake Wellington follows the Latrobe year to year.** Across 1990/91 to 2024/25, yearly median salinity falls as Rosedale flow rises.[910]
- **Dry years drive the highest salinities.** 2018/19 (267 GL) was the third-driest year at Rosedale since 1990/91, close to the 5th percentile of Technical Report D's own medium-climate baseline.[911] In calendar 2019, Lake Wellington's median surface salinity was 19.0 PSU (ten samples), three times its threshold. Technical Report D identifies 2019 as the year of lowest inflow in its 1977 to 2019 record and puts the project's increment that year at 1.8 ppt, near the top of its 0.15 to 1.95 ppt range.[912]
- **Wet years reset the lake, briefly.** The wet years from 2019/20 to 2021/22 freshened Lake Wellington from 17.2 PSU to 1.0 PSU. Three years later it was back at 11.0 PSU. The connected option would divert part of the Morwell River's contribution to such high flows; in the same wet sequence, the temporary diversion took 34.1 GL into the void [66].

1.4 The EES's "less than six months" tested

Technical Report D gives no calculation for its six-month figure. Attachment 3.2 gave the same figure, attached to a much smaller increment: an average rise of 0.09 ppt over the filling period, under the fast connected fill and medium climate, which "would 'naturally' take place in less than 6 months". The main report now puts the increment at roughly 0.7 ppt, but keeps the six months.[913] Even 0.09 ppt equals about nine months to a year and a half of the observed rise. The test is straightforward: divide the project's salinity increment by the rate at which Lake Wellington is observed to be salinising.

Observed rate of rise (flow-adjusted)	PSU per decade	Years equal to Technical Report D's 0.67 ppt	Years equal to one-fifth of it
Primary analysis	0.74	About 9	About 2
Range across sensitivity checks	0.58 to 1.16	About 6 to 12	About 1 to 2
Validated flow record from 2000	1.16	About 6	About 1

- For "less than six months" to hold, Lake Wellington would need to be salinising at 13.4 PSU a decade, 12 to 23 times the observed rate.
- Technical Report D describes its estimates as upper bounds. Even at one-fifth of its mean increment, the increment equals one to two years of observed rise, not months.
- Raw annual medians are not used for this test. Their slope swings from +6.0 PSU a decade (1990 to 2009) to -0.9 (2000 to 2025), because a wet 1990s, the Millennium Drought and wet 2020s dominate it. Allowing for inflow is what reveals the underlying rise.
- If there were no underlying rise, the increment would not hasten anything; it would be a permanent addition, as Chapter 25 accepts for salinisation through reduced flushing.
- Technical Report D also describes the increment as "well within natural variability".[914] That is true: Lake Wellington's annual median ranged from 1.0 to 17.2 PSU in the eight years in section 1.3. But natural variability determines what can be detected, not what matters (section 1.8).

[910] Spearman ρ = -0.85, 35 years; -0.78 on the validated flow record from 2000/01.
[911] 253 GL; ENGIE Hazelwood 2026, *Technical Report D*, Table 71, p. 181.
[912] Ibid., Attachment 3.2, p. 4.
[913] Ibid., Attachment 3.2, s 5.3 and Table 12, p. 12; ss 8.2.3.2 and 8.2.3.3, p. 204.
[914] Ibid., p. 204.

- **Uncertainty.** The observed rates carry some uncertainty from the sampling (section 1.1), but not enough to matter here: six months would require 13.4 PSU a decade, more than twice the steepest raw slope quoted below (+6.0 PSU a decade, 1990 to 2009).

1.5 Blooms and nutrients

- **Chlorophyll-a shows no long-term trend at any site, with or without allowing for inflow.**
- **Blooms are a chronic condition in Lake Wellington.** Its chlorophyll-a exceeded 10 µg/L in most surface samples in every decade from 1990 to 2019, and in 90 per cent of samples in the 2010s.
- **Recent years are rising again.** Annual medians were 6.0 to 9.6 µg/L from 2020/21 to 2023/24, then 12.0 µg/L in 2024/25 and 14.5 µg/L in 2025/26. The reading of 56 µg/L on 26 August 2025 is the second-highest at the site since 1990.
- **Total nitrogen is above threshold every year.** Annual medians have exceeded the 2024 Report's thresholds in every year since 2018/19 at Lake Wellington and Lake Victoria (450 µg/L).
- **Nitrogen is the nutrient that generally limits algal growth.** Outside Nodularia blooms the Gippsland Lakes are generally nitrogen-limited,[915] so persistently high total nitrogen in Lakes Wellington and Victoria bears directly on bloom risk. On this record the flow-adjusted nitrogen tests are not conclusive: borderline at Lake Victoria and not significant at Lake Wellington (Annex 2, Table 2.2). The EES reports a possible increasing trend in both total nitrogen and total phosphorus in Lake Wellington, from limited monitoring at one point between 2013 and 2016. Neither record is enough to establish a nutrient trend.
- **Total phosphorus is above threshold in most recent years.** Lake Wellington exceeded 62 µg/L in four of the last five years, with a 2025/26 median of 105 µg/L.
- **Harmful algal blooms in 2026.** Testing has identified multiple algae species of concern in the lakes at various times since March 2026, including Karlodinium, following fish deaths at Loch Sport in late March 2026. Seafood advice remained in place across the Gippsland Lakes in June 2026. A suspected Karlodinium bloom is believed to have contributed to the Loch Sport fish deaths. These are marine and brackish-water taxa; their prominence is consistent with, though it does not establish, the shift to more marine conditions in section 1.2. The salt-tolerant cyanobacterium Synechococcus, whose 2007/08 bloom was unprecedented, has since bloomed again in 2017/18, 2019/20 and early 2025.[916]

The receiving water for any lake discharge is therefore already eutrophic, bloom-prone and above its nutrient thresholds for nitrogen as well as phosphorus [77] to [83], [235].

1.6 Clarity and oxygen

- **Clarity.** Allowing for inflow, Secchi depth is declining at Lake Victoria (0.21 m a decade, p = 0.006) and Lake King North (0.29 m a decade, p = 0.016). Both results are borderline: neither survives correction for multiple testing.
- **Low oxygen at Lake King North.** Bottom water falls below 2 mg/L in 7 to 12 per cent of samples in every decade, and below 4 mg/L in 13 to 29 per cent.
- **Lake Wellington's bottom water is unobserved.** It has not been sampled since 22 August 2018, so its salt wedge and oxygen are now unmonitored.

1.7 Monitoring is thinning

The release's own metadata describes the sampling frequency as "Monthly (where possible)". In practice:

- **Frequency has fallen.** Lake King North was sampled 12 times a year in 2009 to 2011, 2014, 2016 and 2022, 6 times in 2020 and 8 in 2025. From June 2025 sampling has run at alternate months: June, August, October and December 2025, and February, April and May 2026.

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[915] Cook, P.L.M. et al. 2016, "Blooms of cyanobacteria in a temperate Australian lagoon system", p. 3684; Holland, D.P. et al. 2012, "Environmental controls on Nodularia spumigena", p. 47.
[916] Gell, P.A. et al. 2026, "Ecological character under the Ramsar Convention", p. 5.

Sampling in the 1990s and 2000s was often less frequent still; the point is that the cut comes just as the record most needs strengthening.

- **Whole parts of the system are no longer sampled.** There have been no Lake Wellington bottom samples since August 2018. Lake Reeve West, inside the Ramsar site, has not been sampled since June 2023.
- **Some indicators are barely measured.** Turbidity has been recorded only since 2012. Dissolved oxygen in mg/L was measured in 2 of 105 samples between June 2018 and June 2019.
- **What alternate-month sampling costs.** Dropping every second round from fully sampled years shows that annual salinity and nitrogen medians hold within 1 to 6 per cent. Chlorophyll-a medians are typically 10 to 14 per cent off, and about 40 to 45 per cent off in one year in ten at Lake Victoria and Lake King North. A median comparison does not capture the larger losses: short stratification, salinity-intrusion and low-oxygen events, and the power to detect trends.
- **What is needed.** Sampling at least twice monthly at the same state of tide, more sites in Lake Wellington, depth profiles at every site, and event sampling of the river inflows for nitrogen, phosphorus and salinity (section 1.1; [223](a)). The gaps in the present record are the clearest case for it.

DEECA ran weekly sampling to track the 2026 bloom. That is event response; the long-term record the EES relies on is the EPA fixed-site program.

1.8 What monitoring can detect

Salinity.

- Lake Wellington's annual median salinity has a year-to-year standard deviation of 4.4 PSU (34 financial years, 1990/91 to 2024/25, each with at least four samples).
- Comparing two 12-year periods at conventional power (80 per cent, 5 per cent two-sided), the smallest change that could be reliably detected is about 5 PSU (5.0 to 5.5 across year definitions and periods), seven times Technical Report D's mean increment. Detecting 0.67 PSU directly would need about 700 years of record on each side.
- Allowing for inflow, the smallest detectable change between two 12-year periods is about 1.7 to 1.9 PSU, two and a half to three times Technical Report D's mean increment, and about 3 to 4 PSU once year-to-year persistence is allowed for. Detecting 0.67 PSU would need 80 to 95 years of flow-adjusted record on each side.
- These figures assume independent years. Lake Wellington's annual values are correlated from year to year, and allowing for that makes every detectable change larger, so the figures here favour detection.

Phosphorus. The same limit applies to load targets. Southern Rural Water's annual phosphorus load estimates for the Macalister Irrigation District (2000/01 to 2025/26) vary by about 23 t a year. Two 12-year periods would need to differ by about 26.5 t before a change could be reliably detected. The Lake Wellington plan's 7.5 t reduction target would need on the order of 150 years of record on each side. No equivalent nitrogen load series has been analysed here, although nitrogen generally limits algal growth in the Lakes (section 1.5); a reliable nitrogen load record is a monitoring gap in its own right.

Consequence. The project's downstream salinity effect is real on the proponent's own model, but no plausible lake monitoring program will detect it.

- An increment that is "well within natural variability" is unmonitorable, not insignificant.
- Adaptive management that waits for lake monitoring to detect the salinity increase will never be triggered.
- Better sampling would sharpen the picture but not change this conclusion: more frequent and better-placed sampling reduces the noise from sampling itself, not the year-to-year variability that inflow drives.

- Protection must act on the cause, the flows, through rules fixed before approval: flow-based triggers at the points the State already measures, and a drought rule for the fill ([223](a), [223](b); [230]).
- The IAC must decide on the predicted effect, because monitoring will not resolve it afterwards.

1.9 The 2024 Environment Report's ratings are fragile

Applying the 2024 Environment Report's rating method to the public data reproduces 56 of its 73 published medians within 5 per cent, and 13 of its 15 ratings.

The two that differ are Lake Victoria and Lake King salinity. The Report rates both Good; on the public data for the same window, both are Poor.

- The Report states that there was no salinity data for Lakes Victoria and King from November 2017 to July 2019, and shows 2018/19 as N/A. The EPA public release now holds ten samples for that year, with medians of 26.0 PSU at Lake Victoria and 29.0 at Lake King North; they may have been added to the release after the Report was prepared.
- Without 2018/19, both ratings would still be Fair, not Good: the 2019/20 medians sit at or just above the thresholds.

Ratings that change with a single year, on a system whose salinity is rising, are the case for the independent audit and public reporting sought at [223](d).

1.10 Limits

- The sampling limits are set out in section 1.1; they affect the precision of the estimates more than their direction.
- Each lake is represented by a single fixed site (three for Lake King), sampled at no consistent time or state of tide, and shallow Lake Wellington can be fully mixed by a storm.
- Inflow adjustment uses gauged river flow only. It does not cover ungauged catchments, irrigation drains, groundwater, ocean levels or entrance discharge. Removing inflow shows what the rivers cannot explain; it does not identify what does.
- Most 1990s flow records for the western rivers are unedited or unvalidated; the results that rest on the 1990s are checked against the validated record from 2000 (section 1.2).
- Lake Wellington's flow-adjusted salinity trend is the least certain of the six salinity results: it holds under every sensitivity check but does not survive correction for multiple testing, and is borderline once year-to-year persistence is allowed for (block bootstrap $p = 0.05$).
- Nitrogen and phosphorus values have been reported in 5 µg/L steps since about 2014, which suggests a change of laboratory method.
- 2025/26 is a partial year.
- This annex does not model the project's effect. Where it uses the project's increment, it uses the EES's own figures.

1.11 Where this annex is used

Result	Section	Submission
Salinity rising beyond what inflow explains; water column becoming uniformly marine	1.2	[110], [112], [113]; Table 2
Lake Wellington tracks Latrobe flow; highest in dry years; floods reset it	1.3	[108], [66], [68]
"Less than six months" inconsistent with the observed rate by a factor of 12 to 23	1.4	[107], [108], Q9
Receiving water already eutrophic and above nutrient thresholds; 2026 harmful blooms	1.5	[77] to [83], [235]
Routine monitoring halved; Lake Wellington bottom water and Lake Reeve unsampled	1.7	[200], [223](a), [223](e), [230]
Project increment undetectable by lake monitoring; protection must act on flows	1.8	[196], [200], [223](a), [223](b), [230]
Report ratings fragile	1.9	[223](d)

Annex 2. Methods and reproducibility

Annex 1 was prepared by Friends of Gippsland Lakes Inc. This annex sets out how the computed figures in Annex 1 were produced. The script **fogl_annexA_analysis.py**, lodged with this submission, runs from the raw public downloads to every computed figure in Annex 1, sections 1.1, 1.2, 1.5, 1.6, 1.7 and 1.9, and to the phosphorus figures in section 1.8. It writes results.json, which holds each number under a key, and results.txt, the same results as readable tables; the copy lodged is **fogl_annexA_results.txt**. It runs in a few minutes on a laptop. The figures in sections 1.3 and 1.4, and the salinity figures in section 1.8, are computed from the same inputs by the methods in section 2.7.

The script's results keys use the labels A1 to A10, which predate this annex's numbering. Table 2.3 shows which keys support each section of Annex 1.

2.1 Data

- EPA Victoria, Gippsland Lakes Water Quality Data 1990 - 2026 (xlsx, sheet "Data"), extracted to 14 May 2026: 3,505 records at seven sites.
- Victorian Water Measurement Information System (VWMIS): raw instantaneous streamflow exports for the nine gauges in Table 2.1, downloaded in October 2026. Stations are identified by their Site ID, not by file name.
- VWMIS quality codes 151 to 153, 180, 190, 254 and 255 mark no usable value and are dropped. All other readings are kept, and their quality is reported by decade (results key flow_quality_shares_pct).
- EPA records that describe the same sample (same site, date and depth) are combined by averaging their numeric fields.
- The surface round of 25 June 2019 (0.0 to 0.4 PSU at every site) is removed before any calculation.

Table 2.1. Gauges used

ID	Station	Use
226228	Latrobe River at Rosedale	Inflow, all lakes
225232	Thomson River at Bundalaguah (includes the Macalister)	Inflow, all lakes, from 12 June 1996
225212	Thomson River at Wandocka	Rebuilding Thomson flow before June 1996
225201	Avon River at Stratford	Inflow, all lakes
224203	Mitchell River at Glenaladale	Inflow, Lakes Victoria and King
223205	Tambo River downstream of Ramrod Creek	Inflow, Lakes Victoria and King
223204	Nicholson River at Deptford	Inflow, Lakes Victoria and King
225221	Macalister River at Stringybark Creek	Rebuilding Thomson flow (primary)
225219	Macalister River at Glencairn	Rebuilding Thomson flow (cross-check)

2.2 Daily flows and the inflow index

Raw readings are averaged to hourly values, gaps of up to seven days are filled by linear interpolation in time, and each day's hourly values are averaged:

```
Q_day = (1/24) · Σ_h Q_h     (Q_h = hourly value, interpolated across gaps of up to 7 days)
```

For a lake sample taken on day t, the inflow index is the mean daily inflow, summed across the relevant gauges, over the w days before sampling:

```
Q̄_w(t) = (1/w) · Σ_(i=1..w) Σ_gauges Q_day(t − i),   w ∈ {30, 60, 90, 120, 180, 270, 365} days
```

Lake Wellington uses the Latrobe, Thomson (Bundalaguah) and Avon. Lakes Victoria and King use these plus the Mitchell, Tambo and Nicholson. At least 80 per cent of days in a window must have data.

2.3 Thomson flow before June 1996

Bundalaguah begins on 12 June 1996. Earlier flow is the measured Wandocka flow plus the lower Macalister, estimated month by month from the Macalister at Stringybark Creek:

$$Y_m = \beta 0 + \beta 1 \cdot S_m + \beta 2 \cdot S_{(m-1)} + \beta 3 \cdot S_{(m-2)} + \Sigma_j \gamma_j \cdot M_j(m) + \varepsilon_m$$

Y = monthly mean of (Bundalaguah − Wandocka), ML/day; S = Stringybark monthly mean; M_j = month-of-year indicators

The model is fitted by ordinary least squares on July 1996 to 2019. Fitted on July 1996 to 2004 and tested on 2005 to 2017, the annual correlation is 0.92, with volume 6 per cent low; fitted on 2005 to 2020 and tested on 1997 to 2004, it is 0.93, with volume 28 per cent high. The estimated lower Macalister for 1990 to mid-1996 is 984 ML/day on the primary fit and 894 to 1,005 ML/day on the alternative fits. A second model using the Macalister at Glencairn, which tracks Stringybark closely (annual correlation 0.94), gives 928 ML/day (results key A1_reconstruction).

2.4 Flow adjustment and trend tests

Step 1. For each indicator at each site, the sample value C is regressed on the log of the inflow index, and the window with the highest R^2 is kept:

$$C_t = a + b \cdot \ln(1 + \bar{Q}_w(t)) + e_t, \qquad w^* = \text{the window that maximises } R^2$$

$$r_t = C_t - (\hat{a} + \hat{b} \cdot \ln(1 + \bar{Q}_{w^*}(t))) \qquad \text{(flow-adjusted residual)}$$

Step 2. Residuals are reduced to quarterly medians, January 1990 to June 2026, so each year has four seasons (k = 1 to 4).

Step 3. The correlated seasonal Mann-Kendall test is applied:[917]

$$S_k = \Sigma_{(i<j)} \operatorname{sgn}(x_{jk} - x_{ik}), \qquad S = \Sigma_k S_k$$

$$\operatorname{Var}(S) = \Sigma_k \operatorname{Var}(S_k) + \Sigma_{(k \neq l)} \operatorname{Cov}(S_k, S_l) \qquad \text{(covariances estimated from ranks)}$$

$$Z = (S - \operatorname{sgn} S) / \sqrt{\operatorname{Var}(S)}, \qquad p = 2 \cdot [1 - \Phi(|Z|)]$$

Step 4. The trend is the seasonal Sen slope,[918] the median of all within-season pairwise slopes, expressed per decade:

$$\beta = 10 \times \text{median over } k \text{ and } i<j \text{ of } (x_{jk} - x_{ik}) / (j - i)$$

Step 5. Year-to-year persistence. The test in step 3 allows for correlation between seasons within a year, but not for persistence from one year to the next, which inflates significance when it is present. As a check, the seasonal statistic S is recomputed 1,000 times with whole years resampled in circular blocks of three years. The share of resamples with |S| at least as large as observed is reported as a bootstrap p-value.

Step 6. The 22 tests are ranked by p-value and the Holm procedure is applied:[919]

$$\text{reject test (i) while } p_{(i)} \le 0.05 / (22 - i + 1), \qquad i = 1, 2, \ldots$$

The 22 tests are chlorophyll-a, total nitrogen, total phosphorus, suspended solids and salinity at Lakes Wellington, Victoria and King North (15); surface salinity at Lake King South and Shaving Point; bottom salinity at Lake King North; Lake Victoria stratification (bottom minus surface salinity on the same day); and Secchi depth at Lake Victoria, Lake King North and Shaving Point. Table 2.2 gives the results.

2.5 Sensitivity checks

[917] Hirsch, R.M. and Slack, J.R. 1984, "A nonparametric trend test for seasonal data with serial dependence", *Water Resources Research*; Hipel, K.W. and McLeod, A.I. 1994, *Time Series Modelling of Water Resources and Environmental Systems*.
[918] Sen, P.K. 1968, "Estimates of the regression coefficient based on Kendall's tau", *Journal of the American Statistical Association*.
[919] Holm, S. 1979, "A simple sequentially rejective multiple test procedure", *Scandinavian Journal of Statistics*.

Each test is repeated with fixed 90 and 180-day windows; inflow without the Thomson; the eastern rivers only (Lakes Victoria and King); a multi-river regression with each river's log inflow as a separate term; a quadratic rather than linear relationship between the indicator and log inflow; three alternative reconstructions of early Thomson flow (Stringybark fitted on 1996 to 2004, Stringybark fitted on 2005 to 2019, and Glencairn); a 1997 start on the measured Thomson record; and an end in 2019, excluding the wet years since 2020. Two further runs start in 2000 (validated flow records only) and 2002 (results key flow_adjusted_variants).

In Annex 1, "holds under every sensitivity check" means p < 0.05 in all of these runs except the 2000 and 2002 starts, which are reported separately. "Borderline" means p < 0.05 on the primary analysis but not under one or more of the alternative reconstructions or the 1997 start. † marks results that survive the Holm correction.

Table 2.2. The 22 flow-adjusted tests, January 1990 to May 2026

Test	Window (days)	Slope per decade	p	p, block bootstrap	p, quadratic model	Holm †	Sensitivity
Lake Wellington, chlorophyll-a	60	-0.31 µg/L	0.335	0.448	0.327		not significant
Lake Wellington, total nitrogen	90	+69 µg/L	0.060	0.134	0.051		not significant
Lake Wellington, total phosphorus	90	+8.03 µg/L	0.237	0.333	0.119		not significant
Lake Wellington, suspended solids	90	+0.32 mg/L	0.941	0.958	0.876		not significant
Lake Wellington, salinity	180	+0.74 PSU	0.013	0.052	0.011		holds under all
Lake Victoria, chlorophyll-a	60	+0.15 µg/L	0.870	0.905	0.945		not significant
Lake Victoria, total nitrogen	30	+55 µg/L	0.004	0.026	0.001		borderline
Lake Victoria, total phosphorus	270	+6.42 µg/L	0.147	0.216	0.109		not significant
Lake Victoria, suspended solids	60	+1.07 mg/L	0.124	0.231	0.073		not significant
Lake Victoria, salinity	120	+1.34 PSU	< 0.001	0.001	< 0.001	†	holds under all
Lake King North, chlorophyll-a	365	-0.41 µg/L	0.567	0.654	0.870		not significant
Lake King North, total nitrogen	270	+25 µg/L	0.166	0.281	0.069		not significant
Lake King North, total phosphorus	365	+2.09 µg/L	0.429	0.510	0.189		not significant
Lake King North, suspended solids	365	+0.50 mg/L	0.271	0.332	0.240		not significant
Lake King North, salinity	90	+1.54 PSU	< 0.001	0.001	0.001	†	holds under all
Lake King South, salinity	60	+1.66 PSU	< 0.001	< 0.001	< 0.001	†	holds under all
Shaving Point, salinity	60	+1.85 PSU	< 0.001	< 0.001	< 0.001	†	holds under all
Lake King North, salinity (bottom)	120	+1.31 PSU	< 0.001	0.001	< 0.001	†	holds under all
Lake Victoria stratification	365	-1.15 PSU	< 0.001	0.010	< 0.001	†	significant, not under all
Lake Victoria, Secchi depth	120	-0.21 m	0.006	0.050	0.007		borderline
Lake King North, Secchi depth	180	-0.29 m	0.016	0.025	0.015		borderline
Shaving Point, Secchi depth	180	-0.18 m	0.223	0.259	0.273		not significant

Shading: blue = survives the Holm correction and holds under every sensitivity check; light blue = significant on the primary analysis, but not under every check or not after the Holm correction; amber = borderline; unshaded = not significant.

2.6 Other calculations

Annual-median trends, not flow-adjusted. Years with at least four samples, 1990 to 2025; Theil-Sen slope; Mann-Kendall test with the Hamed and Rao correction for serial correlation (results key A3_raw_annual_median_salinity):[920]

```
Var(S) = n(n−1)(2n+5)/18

Var*(S) = Var(S) · [1 + 2/(n(n−1)(n−2)) · Σ_k (n−k)(n−k−1)(n−k−2)·ρ_k]   (ρ_k =
significant autocorrelations of detrended ranks)
```

Inflow explains salinity. The share of variation explained is the R^2 of the step 1 regression at the selected window (results key A3_inflow_r2_salinity).

Higher salinity for the same inflow than in the 1990s. The mean flow-adjusted residual for 2016 to 2025 minus the mean for 1990 to 1999, across the primary and alternative reconstructions (results key A3_saltier_than_1990s_PSU).

Stratification. Bottom minus surface salinity on the same day at each Lake King site; the median and 90th percentile of those differences (results key A3_profiles).

Annual and decade medians. Financial-year (July to June) and decade medians of surface samples, years with at least four samples (results keys FY_medians_2019_2026, decade_medians, A5_LW_chl_FY_medians).

Exceedance and oxygen shares. Per cent of samples above each limit, counting only samples with a reading for that parameter (results keys A5_chl_exceedance_pct, A6_bottom_DO_LKN_pct).

Report rating replication. Financial-year medians of surface samples compared with the 2024 Environment Report's thresholds (0 exceedances in five years = Good, 1 = Fair, 2 or more = Poor). A published median counts as matched when the public-data median is within 5 per cent or 0.5 units (results key A7_replication).

Sampling frequency and the alternate-month test. Rounds per year are counted from distinct sampling dates (results keys A2_occasions_LKN, A2_rounds_since_June_2025, A2_facts). In years with 11 or 12 rounds, every second round is dropped, starting once from the first round and once from the second, and the median of the remaining rounds is compared with the full-year median (results key A2_subsampling).

Phosphorus target detectability. From the year-to-year standard deviation σ of the Macalister Irrigation District load and a target change δ, at 5 per cent significance and 80 per cent power (results key A10_detectability):

```
n ≈ 2 · (z_0.975 + z_0.80)² · σ² / δ² ≈ 2 × 2.8² × σ² / δ²     (years needed in each
period)

δ_min ≈ 2.8 · σ · √(2/12)     (smallest change detectable with 12 years either side)
```

With σ = 23.2 t and δ = 7.5 t, n ≈ 150 years and δ_min ≈ 26.5 t. The load series is read from Southern Rural Water's history chart and is listed in the script.

2.7 Figures specific to this submission

The figures below use the same EPA and VWMIS inputs, the daily flows of section 2.2 and the flow-adjusted residuals of section 2.4.

- **Rosedale annual flow (section 1.3).** Daily mean flows at Rosedale summed by financial year, in GL. The median and lowest years are taken over 1990/91 to 2024/25.
- **The Latrobe's share (section 1.3).** For each financial year, Rosedale flow divided by the combined flow at Rosedale, Bundalaguah (with the reconstruction in section 2.3 before June 1996) and Stratford. Years are ranked by combined flow and divided into quarters. The overall share and the driest and wettest quarter shares are total Rosedale flow divided by total combined flow over those years; the bracketed range is the range of single-year shares. The relation between share and combined flow is tested with Spearman's rank correlation.

[920] Hamed, K.H. and Rao, A.R. 1998, "A modified Mann-Kendall trend test for autocorrelated data", *Journal of Hydrology*.

- **Lake Wellington's annual medians (section 1.3).** As in section 2.6. The calendar 2019 figure is the median of the ten surface samples taken in that year.
- **The six-month test (section 1.4).** With Δ = Technical Report D's mean increment of 0.67 ppt (taken as 0.67 PSU) and β the flow-adjusted slope per decade from Table 2.2 and section 2.5:

```
years equal to Δ = Δ / (β / 10)

rate needed for six months = Δ / 0.5 years = 1.34 PSU a year = 13.4 PSU a decade
```

- The raw annual-median slopes quoted for comparison (1990 to 2009, and 2000 to 2025) are Theil-Sen slopes of the annual medians over those years, as in section 2.6.
- **Salinity detectability (section 1.8).** σ is the standard deviation of Lake Wellington's financial-year median salinity, 1990/91 to 2024/25, in years with at least four samples (34 years). The smallest detectable change between two 12-year periods and the years needed to detect 0.67 PSU use the formulas for phosphorus in section 2.6. The flow-adjusted figures repeat the calculation on the annual means of the flow-adjusted residuals. The figures allowing for persistence reduce the effective number of years to $n(1 - r_1)/(1 + r_1)$, where r_1 is the lag-one autocorrelation of the annual values.

These figures are not computed by the lodged script.

2.8 What the script does not reproduce

Values taken from other documents are cited at their source and not recomputed: the 2024 Environment Report's published medians and ratings, and Southern Rural Water's load estimates, both of which are listed in the script for the calculations above, and the EES figures used in sections 1.3 and 1.4, including Technical Report D's 0.67 ppt increment and its 1.8 ppt for 2019. The flow-data quality shares in section 1.1 are computed by the script from the VWMIS quality codes, using VWMIS's code meanings.

2.9 Software

Python 3.12, with numpy 2.4, pandas 3.0, scipy 1.17, pymannkendall 1.4.3 and openpyxl 3.1.[921] To run: python fogl_annexA_analysis.py --data [folder holding the VWMIS downloads and the EPA dataset] --out [output folder].

2.10 Where each figure in Annex 1 comes from

Table 2.3. Annex 1 figures and the results keys that hold them

Annex 1 section	Figures	Results keys, or method
1.1	Records, samples, duplicate pairs, excluded round; flow-data quality	A1; flow_quality_shares_pct; A1_reconstruction
1.2	Decade medians; flow-adjusted trends and checks; explained variance; higher salinity than the 1990s; stratification; 2025/26 medians	decade_medians; trend tests; flow_adjusted_variants; holm_survivors; A3_inflow_r2_salinity; A3_saltier_than_1990s_PSU; A3_profiles; FY_medians_2019_2026
1.3	Lake Wellington salinity and chlorophyll-a medians	FY_medians_2019_2026; A5_LW_chl_FY_medians
1.3	Rosedale flows; the Latrobe's share; calendar 2019 median	Section 2.7
1.4	Observed rates and the sensitivity range	Trend tests; flow_adjusted_variants
1.4	Years equivalent; rate needed; raw sub-period slopes	Section 2.7
1.5	Chlorophyll-a exceedance, medians and peaks; nitrogen and phosphorus medians	A5_chl_exceedance_pct; A5_LW_chl_FY_medians; A5_peaks; FY_medians_2019_2026
1.6	Secchi trends; bottom oxygen	Trend tests; A6_bottom_DO_LKN_pct

[921] Hussain, M.M. and Mahmud, I. 2019, "pyMannKendall: a python package for non parametric Mann Kendall family of trend tests", *Journal of Open Source Software*.

Annex 1 section	Figures	Results keys, or method
1.7	Rounds per year; unsampled sites; alternate-month test	A2_occasions_LKN; A2_rounds_since_June_2025; A2_facts; A2_subsampling
1.8	Phosphorus load detectability	A10_detectability
1.8	Salinity detectability	Section 2.7
1.9	Report replication	A7_replication; FY_medians_2019_2026
1.10	Nutrient values in 5 µg/L steps	A4_rounding_share_since_2014_pct

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Every source cited in the footnotes is listed below, in alphabetical order of author. Pin cites in the footnotes are to printed page numbers, checked against the exhibited or published versions; the attachments to Technical Report D carry their own pagination. Where a source is published online, its web address follows the entry. In Tables 1 to 7, sources are given in lettered notes directly beneath each table.

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