

# Man-Made Ecological Disaster from the Lakes to the Coast

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The slide features the Revive Lake Cathie logo on the left, which includes the text 'revive lake cathie' in a stylized font, 'VOICE OF THE LAKE' below it, and the names 'KATE ASTON - BOARD MEMBER' and 'DANIELLE MALTMAN - PRESIDENT' at the bottom. To the right of the logo is the title 'MAN-MADE ECOLOGICAL DISASTER FROM THE LAKES TO THE COAST' and a circular logo of a white swan on a blue background.

We represent Revive Lake Cathie Inc.

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The slide shows an aerial photograph of a coastal estuary with a yellow beach and blue water. The title 'Revive Lake Cathie Inc' is at the top. Below the photo is the text 'VISION STATEMENT' and 'To achieve sustainable health and amenity of the Lake Cathie/ Lake Innes Estuarine System.'

Revive Lake Cathie is a community group whose VISION STATEMENT is to achieve the sustainable health and amenity of the Lake Cathie/Lake Innes Estuarine System.

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The slide features an aerial photograph of a lake and coastline on the left. On the right, the title 'Revive Lake Cathie Inc MISSION STATEMENT' is displayed. Below the title, it says 'We achieve our vision by:' followed by a bulleted list: '• Conservation of Lake Cathie/ Lake Innes Estuarine System', '• Advocating for best practice in estuarine management', '• Collaboration and partnerships with stakeholders', and '• Inspiring our future eco warriors'.

## Mission Statement

Revive Lake Cathie will achieve our vision by:

- Conservation of the Lake Cathie/Lake Innes Estuarine System
- Advocating for best practice in estuarine management
- Collaboration and partnerships with stakeholders
- Inspiring our future eco warriors

Footage and photos released in July 2019 since then our Ecosystem has deteriorated severely.

DVD- play



Early in 2019, local residents and visitors started to notice a significant loss of the quality and volume of water in our lake's ecosystem. Children started asking: -



"Why can't we swim anymore?"  
"Where are the pelicans gone?"



"Why are the fish dying?" and;



"How can we get our beautiful lake back?".

This spurred on a group of concerned locals to call a community meeting on the 19th of March 2019 to discuss the deterioration of the lakes, waterways and how we could look towards future proofing the ecosystem. It was a passionate discussion with many views expressed and solutions put forward with many locals putting their hands up to volunteer to help.

The result of this meeting was the formation of Revive Lake Cathie Inc (RLC) with board members and pod leaders elected. Our priorities were developed to address the decline and achieve the sustainable health and amenity of The Lake Cathie/Innes Estuarine system, which were then endorsed by scientists.

**Revive Lake Cathie Inc**  
**PRIORITIES**

LAKE CATHIE/ LAKE INNES ESTUARINE SYSTEM

1. Sand grading at Lake Cathie Lagoon/Ocean interface
2. Reversion of Lake Innes
3. Kenwood Drive Bridge replacement
4. Whole of Estuarine System sediment removal/repurpose
5. Scientific soil, water quality and height testing in various areas
6. Reinstatement of permanent membership to NSW Waterwatch
7. Stakeholders to implement a wholistic approach and action to improve Estuarine health

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## Priorities


### Lake Cathie/Lake Innes Estuarine System

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**Revive Lake Cathie Inc**

Scope of Works

This map is indicative of the geographical area comprising RLC scope – waterways & catchments



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The Lake Cathie/Innes Estuarine system comprises four distinct water bodies, namely Lake Innes, Lake Cathie, Cathie Creek and Cathie Lagoon. The total catchment area is around 100km<sup>2</sup>, of which 60% flows into Lake Innes, 34% flows into Cathie Creek and only 6% into Lake Cathie.

This assemblage is connected via existing corridors to the Great Dividing Range, making it a valuable conservation resource.

The Lake Cathie/Innes Estuary system traditional custodians are the Birpai people.



Lake Innes (as previously known Lake Burrawan) is 7 kms from Port Macquarie and 3 to 5kms from the ocean at Lighthouse Beach. Originally, Lake Innes was a 464 hectare fresh water shallow lake, surrounded by 1066 hectares of wetlands, isolated from the Cathie Creek. Lake Innes was once classified as a significant freshwater bird and wildlife life habitat of National significance.

Innes Swamp is located between Lake Innes and Lighthouse Beach.



Lake Cathie is located on the Mid North Coast of NSW, 17 kilometers south of Port Macquarie, within one kilometer from the coast. The Lake Cathie/Lake Innes Estuarine System is a dynamic system that has significant environmental, biodiversity, heritage and social value. Lake Cathie is classified as an ICOLL - an Intermittently Closed and Open Lake or Lagoon and is one of about 70 such coastal lakes and lagoons located along the coast of NSW.

Lake Cathie and Lake Innes are well studied. Many in-depth scientific reports, which have undertaken research and modelling have provided a host of implementation recommendations to prevent the current condition. However, zero on ground implementation has occurred to mitigate man-made impacts which have led to the decimation of the Lake Cathie/Lake Innes Estuarine System

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Newspaper archives show from 1918 through to 1935 there was much debate, discussion and controversy voiced by locals for and against draining Lake Innes. This can be evidenced in council & parliamentary minutes, political representative quotes, newspaper articles and books written at the time.

The Office of Public Works in the 1930's advised not to undertake the opening of Lake Innes to Cathie Creek. At the time, this advice was disregarded. This action has resulted in changing of the whole ecosystem.



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In 1933, as part of a proposed land subdivision, a drain 6ft wide and 1ft deep was dug between Lake Innes and Cathie Creek. This action was to drain the area of fresh water to open up more land for agricultural purposes for farming closer to Port Macquarie. The "Cutting" as it was to become known, was a failure as subsequently no land was deemed viable for farming purposes. Lake Innes was then left to become saline with the ebb and flow of tidal water when the Cathie Creek mouth is open to the sea.

**Slide 16 - Resulting in the First Man-Made Ecological Disaster in our local ecosystem.**

Variations has resulted in extensive changes to the biology of the lake, including loss of most of the original freshwater habitat and much of the freshwater avifauna. The connection of Lake Innes to the Cathie Creek system with the subsequent intrusion of saline waters, reduction in water levels and changes to the flora has all-but destroyed the attributes of the wetland system as a waterfowl habitat and has seen Lake Innes reduced considerably in size.

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A reverse delta formed at the junction of Lake Innes where the cutting is. This delta is still very evident today. The swamp has been dry for many years and the current rapid evaporation of Lake Innes is very evident.

In July 2019, In partnership with the National Parks and Wildlife Service (NPWS), Port Macquarie-Hastings Council (PMHC) undertook a new study investigating Acid Sulphate Soils around the Lake Cathie/Lake Innes Estuary System. This is known as the [Lake Cathie and Lake Innes Acid Sulfate and Soil Risk Assessment7MB pdf](#)<sup>(PDF, 7MB)</sup>, This assessment shows that the demise of Lake Innes is nigh and the need to convert Lake Innes back to its original freshwater state is critical.

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Revive Lake Cathie has requested the reversion of Lake Innes be undertaken as part of the overall wholistic approach to future proofing the Lake Cathie/Lake Innes Estuarine System. Once work commences at Kenwood Drive Bridge, rubble from the Kenwood Drive Bridge/Culvert along with sand from Lake Cathie, Cathie Creek and Cathie Lagoon could potentially be repurposed in Geotech bags to form part of the weir structure at the point of the Lake Innes cutting/drain.

Slide 21 - Resulting in the Second Man-Made Ecological Disaster in our local ecosystem.



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Next to Lake Innes sits Innes Swamp. Innes Swamp is the original overflow area of 620 hectares and in times of flow Lake Innes used to drain through Innes Swamp into Cathie Creek. The “Cutting “changed the original overflow route diverting water directly into Cathie Creek leaving the swamp dry unless high water inundations.



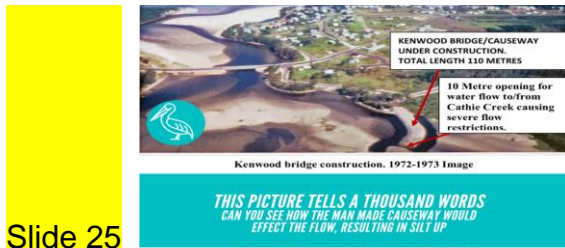
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Cathie Creek including Cathie Lagoon includes 406 hectares of wetland and 45 hectares of intermittent open tidal water before entering the foreshore at the junction of Lighthouse and Lake Cathie Beaches.



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Lake Cathie was 32 hectares of saltwater with 180 hectares of wetland. This is now completely dry due to reduced tidal flows caused by sediment build up due to tidal flow constraints posed by Kenwood Drive Bridge.



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In 1972 the then Hastings Council granted the DA to a developer to develop the land - known as Burrawan Shores Estate. A causeway and culvert were constructed across the entrance to Lake Cathie proper to provide access to this development.



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Lake Cathie proper once displayed a larger intertidal area. Kenwood Drive bridge/causeway has effectively reduced tidal amplitude within Lake Cathie. Both approaches of the Kenwood Drive Bridge were washed out in the flood event of 1978.



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Reconstruction of Kenwood Drive Bridge in 1978 isolated Lake Cathie from the whole of the lagoon system. Remedial works have shown to restrict both tidal and flood flows, leading to significant siltation within the lake and reducing the permanent water surface at low tide to only a couple of hundred square meters when estuary is open, this is now completely dry.



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Over the last 30 years many reports show the current bridge constructed in 1978 has severely restricted the flow of water into and out of Lake Cathie. Nearly all of these reports have recommended the replacement of Kenwood Drive Bridge in conjunction with the revision of Lake Innes.

**Slide 29 - Resulting in the Third Man-Made Ecological Disaster in our local ecosystem.**



One of Revive Lake Cathies proposals is to replace Kenwood Drive Bridge. This proposal is inclusive of removing the rock, sand and accumulated debris and repurpose this rubble for the weir at Lake Innes. Revive Lake Cathie proposes to construct a new bridge of approximately 110 metres, allowing for both incoming and outgoing tidal flow and access for water flow in times of floods. At the same time much of the sand that has built up over the years could be graded into the small islands or used to fill Geotech bags for use at Lake Innes.



The Lake Cathie/Innes Estuary system flows through Cathie Creek and Cathie Lagoon into the ocean. This area is known as Lake Cathie Beach and is another area within the system which has many changing issues, these include: -

1. Build up of sand blocking the mouth
2. Foreshore destruction due to the issues when the mouth opens
3. High sea storms surges
4. Sand dune collapse on the beach front to the south close to homes
5. Inundation periodically of the ocean towards the roadway and nearby homes extubated by poor stormwater drainage over the years.

**Slide 29 - Resulting in the Fourth Man-Made & Nature Ecological Disaster in our local ecosystem.**

All issues raised previously were made by man. Today we are still prevented in restoring our ecosystem to pristine waterway by man. Lake Innes, Lake Cathie, Cathie Creek and Cathie Lagoon ecosystems, waterways and catchment is an asset of the Crown monitored by various government departments.



Port Macquarie Hasting Council is responsible for the Kenwood Drive and Ocean Drive Bridge and east to the ocean mouth. PMHC are also the first step on the ladder to the overall stakeholders.

The entire system is surrounded by Lake Innes Nature Reserve and small section by Queens Lake Nature Reserve, which is overseen by the stakeholders list:

- Port Macquarie Hasting Council - PMHC
- National Parks and Wildlife Service - NPWS,
- Office of the Environment and Heritage - OEH
- NSW Fisheries and DPI

as you are aware these now come under the NSW Department of Environment, Industry and Planning (July 2019).

Having so many agencies, acts, legislation, policies and procedures involved creates red tape and a handbraking effect on endeavoring to restore the health of our ecosystem, saving the life of fauna, flora, marine life, local business, the wellbeing of not just our Lake Cathie community of residents but all within the LGA including visitors to the area.

On 18<sup>th</sup> April 2018 Revive Lake Cathie made a submission to Port Macquarie-Hastings Councils 2019/20 Operational Plan. Following Revive Lake Cathie's submission, we have attended every PMHC Ordinary month meeting and spoken to various issues in regard to our ongoing concerns of the daily decimation of the lake's ecosystem. We asked for a meeting with PMHC and the various stakeholders to enable open, honest collaborative discussion for us to work together to resolve the immediate ecological disaster and to implement future proofing of the ecosystem moving forward. PMHC has held three agency stakeholder meetings and one community stakeholder meeting to date. Until

issues are discussed, constraints reviewed, and a clear timely plan formulated, the lakes ecosystem remains in an imminent state of crisis.

At Port Macquarie-Hastings Council's October Ordinary Meeting, Council advised they were required to undertake several steps to take before any plan can be formulated.

1. Review the Lake Cathie Opening Strategy - which has been in place since 1995 and was last reviewed in 2011. This was developed by the group now known as Coast, Estuary and Floodplain Sub-Committee of PMHC which has met 6 times since 2015. The last meeting was on 3<sup>rd</sup> March 2019 and only mentioned the fish kills that had been reported by RLC at the time.

View: [The Opening Strategy](#)

[Brochure on the Lake Cathie Opening Strategy2MB pdf](#)

[Dredging Strategy \(2007\)](#)

[Lake Cathie Coastal Zone Management Plan \(2016\)](#)

PMHC is currently working under the Coastal Zone Management Plans for the foreshore area of Lake Cathie. They are obliged to complete the NSW Government Coastal Management Program (CMP) framework to manage Coast and Estuarine matters and to receive funding for any future Estuary works to commence. It is imperative that the CMP is completed by 31st December 2021 (state Government deadline).

In order for the CMP to be developed the following background studies have been identified by stakeholders and PMHC to be completed.

2. A digestion model of the Acid Sulfate Soil (ASS) report recently uncovered as a result of a study commissioned by PMHC & NPWS in May 2019.

View: [Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment By Soil Conservation Service](#)

3. A review of the 2013 Lake Inness Reversion Study. Titled: Lake Innes Hydrologic Isolation Study – 2012, PMHC has had this report for many years.

View: <http://unsworks.unsw.edu.au/fapi/datastream/unsworks:43567/SOURCE>

4. An Ecological condition assessment of the saltmarsh community within Lake Innes – to comply with the Australian Government ( EPBC Act) Environment Protection and Biodiversity Conservation Act 1999

5. Review of possible short-term emergency (ASS) containment works to enable moving forward on the CMP.

6. Now we come to the all-important CMP for the Lake Cathie/Innes Estuary system. Which unless completed and approved by DPIE, no funding for restorative or future proofing works to the Lake Innes, Lake Cathie, Cathie Creek, Cathie Lagoon and the Foreshore opening can be applied for.

**“This is starting to sound like Catch 22”**

7. There is no indication if an EIS would still need to be completed on the Lake Cathie/Innes Estuary system before any restorative works could be undertaken.

All of the above-mentioned reports would require significant funding. The works would need to be costed and funded another unknown cost.

**Slide 34 - Resulting in the Fifth Man-Made & Nature Ecological Disaster in our local ecosystem.**



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So, who does the financial contributions come from?

**In the meantime Our Ecosystem Is IN CRISIS.**



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Who needs to be the project manager for our Ecosystem?

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Revive Lake Cathie Inc

Contact us for a chat!

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Revive Lake Cathie Inc, NSW Coastal Conference – 1st November 2019

Revive Lake Cathie ask that any delegates attending this NSW Coastal Conference 2019 who could help us to achieve the sustainable health and amenity of the Lake Cathie/Lake Innes Estuarine System, to please contact us.

**References:**

The Lake Innes-Lake Cathie Catchment – Colin Creighton, University of New England, 1983

Lake Cathie/Lake Innes Estuary Management Plan – Webb, McKeown & Associates 1994

Council maps, reference, documents - PMHC website 2019.

NSW State Government websites 2019

Federal Government websites 2019