

## THE COMMUNITY'S VISION FOR THE GIPPSLAND LAKES AND CATCHMENTS

### 1.0 Executive Summary

An informed and engaged community is best placed to support good decision-making, lead positive behaviours and practice change. As part of the 'Gippsland Lakes – Science, evidence and environmental citizenship' project, this report investigated what the local community values about the Gippsland Lakes and catchments, and in turn, what their vision for the health of the Gippsland Lakes and catchment is, and how it relates to beneficial uses.

A literature review and analysis of survey results indicated that there are numerous community and voluntary-based projects implemented around the Gippsland Lakes and catchment, and the common theme amongst all of these initiatives is the local community's commitment to being the key custodians of the region's natural environment and the wildlife that depend on it. Not only is the local community passionate about protecting the Gippsland Lakes and catchment unique ecosystem but also their strong social and cultural connection to the land, water, flora and fauna, and people.

***Based on the literature reviewed, the community's vision is:***

To improve and protect the health of the Gippsland Lakes and catchment, and the life it supports, through effective natural resource management policies and initiatives that will provide positive environmental, social and economic outcomes for the region.

This will ensure current and future generations continue to enjoy and appreciate the land, water, plants and animals of the Gippsland Lakes and catchment.

### 2.0 Introduction

The Gippsland Lakes is the largest estuarine lagoon system in Australia. The Lakes receive flows from seven major rivers (Latrobe, Avon, Nicholson, Tambo, Mitchell, Macalister and Thomson rivers) of Gippsland from a catchment area of approximately 2,000,000 hectares. The Gippsland Lakes represent a unique aquatic environment, whereby significant ecosystem services such as nutrient filtering, bird habitat, nursery and feeding sites, and refugia are fundamental to the survival of the flora and fauna that are dependent on the health of the Lakes. As such, the Gippsland Lakes is internationally recognised as a wetland of importance and listed under the Ramsar Convention, particularly as it is used as a feeding, resting and breeding site by many endangered and threatened waterbird species. The Gippsland Lakes are also listed in both the Japan Australia Migratory Bird Agreement and China Australia Migratory Bird Agreement.

In addition to the ecological benefits provided by the Gippsland Lakes and catchment, the area is also a major tourism and recreation destination. The waterways in the area are highly valued for recreational pursuits such as swimming, canoeing, sailing, fishing, camping and nature appreciation. Tourism is an important element in economic and employment growth of the region with most of the tourism development around the eastern lakes with the main towns being Bairnsdale, Paynesville, Metung and Lakes Entrance.

The waterways in the region have important cultural values, both pre and post European settlement. The Gunaikurnai people are an Indigenous Australian nation that has been living in the Gippsland Lakes region for tens of thousands of years and the area contains many sites of Aboriginal cultural significance.

Lakes Entrance is also the home of Victoria's largest commercial fishing fleet that is dependent on the maintenance of the artificial entrance at Lakes Entrance. The rivers are important sources of water for irrigation and domestic supply as well as industrial uses. The Latrobe Valley power industry

is the major supplier of electricity across Victoria. Several major storages and weirs supply potable water, and agricultural areas, including the Macalister Irrigation District, supply water for irrigation of dairy, beef and horticulture.

The Gippsland Lakes and catchment community values being consulted and engaged during the planning and development stages of any project or activity occurring in the Lakes, especially if it affects them. Areas which would typically require involvement from the community include:

- Discussion and decision-making processes on issues that impact them
- Collaboration on activities and projects affecting the Gippsland Lakes and catchment
- Learning about and celebrating the Gippsland Lakes and catchment

## **2.1 Purpose of this report**

State Environment Protection Policies (SEPPs) established under the *Environment Protection Act 1970* are a legal framework to protect and improve Victoria's water environments, and the social and economic values they support.

The State Environment Protection Policy (Waters of Victoria; SEPP (WoV)) is critical in protecting our rivers, lakes, wetlands, estuaries and bays. It establishes, in law:

- the uses and environmental values (beneficial uses) Victorians want to protect; and
- defines the water quality standards needed to protect these beneficial uses.

The Environment Protection Authority (EPA), through the 'Gippsland Lakes science, evidence and environmental citizenship' project is examining the water quality standards for the Gippsland Lakes and catchment. This will ensure we have clear and relevant standards to protect and improve the health of our water environment.

The water quality objectives need to be developed with consideration to the environmental values and uses (beneficial uses) of waters that communities want to protect.

The purpose of this report is to identify and link the community's vision with the beneficial uses of the Gippsland Lakes and catchment, and subsequently, assist with developing an agreed statement of community vision and beneficial uses.

This report has collated existing information and survey results that highlights, through case studies, the community's values and vision for the Gippsland Lakes and catchment.

The intent of this report is to stimulate community input and develop an agreed statement of community vision and beneficial uses for the Gippsland Lakes and catchment.

The agreed statement of community vision and beneficial uses together with current scientific information will be used to develop water quality standards that inform the Gippsland Lakes Environmental Strategy (GLES) monitoring and reporting programs, and achieve your vision of a healthy water environment now and into the future.

### 3.0 Beneficial uses

A beneficial use is defined in the *Environment Protection Act 1970* as ‘a use of the environment which is conducive to public benefit, welfare, safety, health or aesthetic enjoyment and which requires protection from the effects of waste discharges, emissions or deposits’.

A beneficial use includes a current or future environmental value or use of waters that communities want to protect. A beneficial use does not prohibit or permit the use of surface waters for any particular purpose, but requires surface waters to be of a suitable quality and quantity to support that use or value.

Data on community values for Victorian waterways has been collected by a number of sources. The East and West Gippsland Catchment Management Authorities have recently updated and reviewed the Aquatic Value Identification and Risk Assessment (AVIRA) values for Victorian waterways (rivers, estuaries and wetlands) as part of the development of the Regional Waterway Management Strategies. Surveys conducted by the Gippsland Lakes Ministerial Advisory Committee (GLMAC) have also collected information about what people value about the Gippsland Lakes and catchment.

#### 3.1 Community views on aspects of management of the Gippsland Lakes and catchment

The GLMAC and EPA conducted a survey in mid-2014 to collect information from the community about how important they believed the current beneficial uses were for the Gippsland Lakes, fringing wetlands, and rivers and streams in the region (Figure 1). Protection of aquatic ecosystems was identified as the most important beneficial use to be protected (by over 97% of respondents). All existing beneficial uses were identified as important to varying degrees.

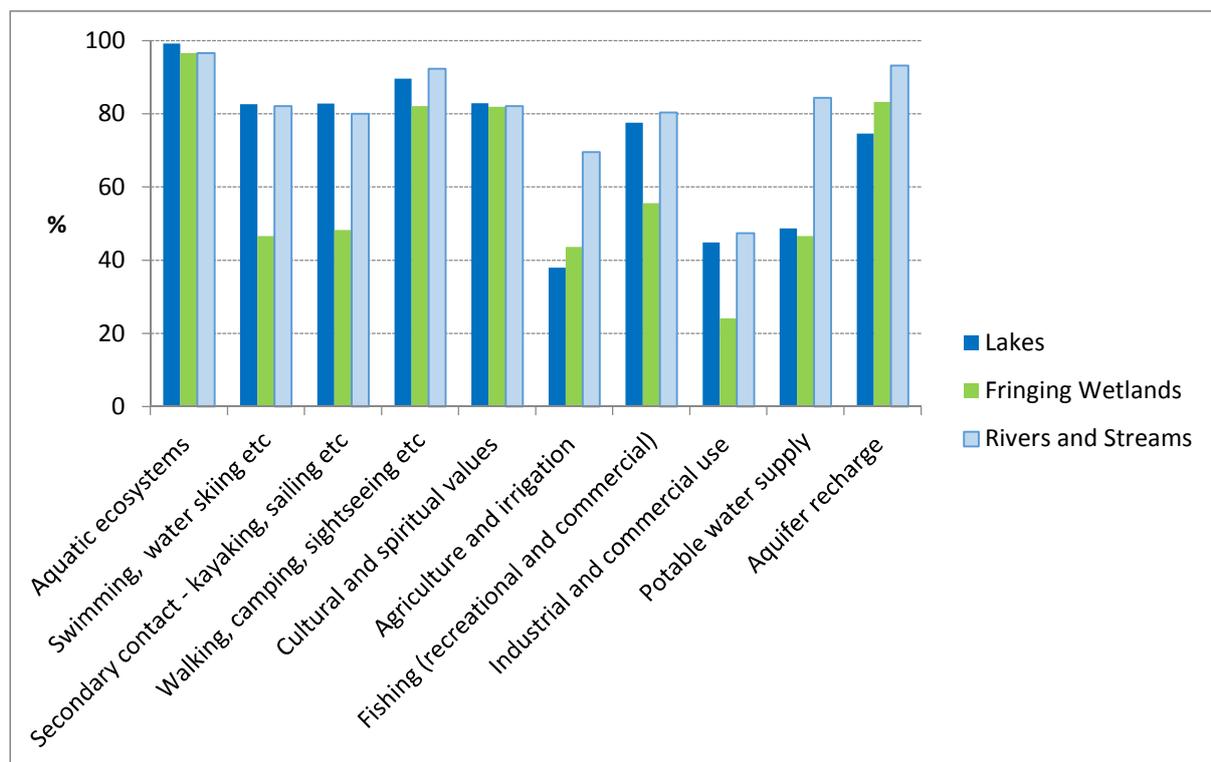


Figure 1 Survey responses (% respondents) who stated that the following values and uses were important to very important for the Gippsland Lakes, fringing wetlands and rivers and streams.

### 3.2 Community awareness of health, issues and management of the Gippsland Lakes

The GLMAC conducted a community awareness survey in 2014 to collect ongoing data regarding the health, issues and management of the Gippsland Lakes. Overall, the community believe that the 'health of the Gippsland Lakes is extremely important' and the community perceived the Gippsland Lakes to be 'fairly healthy'. Protection of aquatic ecosystems was again identified as the most important beneficial use with actions to improve the health of the Lakes focused on protecting aquatic ecosystems (Table 1).

**Table 1. Survey responses when asked 'What do you value the most about the Gippsland Lakes and catchment?'**

Values	Beneficial Use	% of participants
Habitat for native animals/birds	Aquatic ecosystems	79
Clean healthy water	Aquatic ecosystems, Cultural and spiritual values, Human consumption, Primary contact recreation, Secondary contact recreation, Aesthetic, enjoyment, Agriculture and irrigation , Fish, crustacea and molluscs for human consumption	57
Aesthetic value	Aesthetic enjoyment	54
Boating/sailing/kayaking	Secondary contact recreation, Aesthetic enjoyment	49
Recreation	Primary contact recreation, Secondary contact recreation, Aesthetic enjoyment	48
Fishing	Aquatic ecosystems , Fish, crustacea and molluscs for human consumption	36
Drinking water from the catchment	Human consumption	30
Relaxation	Aesthetic enjoyment	29
Tourism	Aesthetic enjoyment	27
Swimming	Primary contact recreation	21
Camping	Aesthetic enjoyment	18
Water for agriculture	Agriculture and irrigation	14
Cultural heritage	Cultural and spiritual values, Aesthetic enjoyment	14

### 3.3 East and West Gippsland Catchment Management Authority values for Victorian waterways (rivers, estuaries and wetlands)

The Department of Environment and Primary Industries (DEPI) developed the AVIRA database which documents the environmental, social and economic values and threats associated with rivers, estuaries and wetlands across Victoria. The East and West Gippsland Catchment Management Authorities have recently updated and reviewed the AVIRA values for waterways in the Gippsland region. As with the surveys, all of the existing beneficial uses have been identified as important to protect for different areas.

## 4.0 Vision

The Gippsland Lakes Environmental Strategy (GLES) recognises that the environmental health of the Gippsland Lakes and catchment is linked to environmental, economic and social values. The same themes identified in the GLES have been used in this report to capture the community's vision for the Gippsland Lakes and catchment. The following case studies, to highlight the community's vision, are just some examples that have been collated to stimulate community input and develop an agreed statement of community vision and beneficial uses for the Gippsland Lakes and catchment.

### 4.1 Biodiversity and Natural Values

The Gippsland Lakes is recognised for its significant coastal wetland values and features and therefore, listed as a Wetland of International Importance under the Ramsar Convention. The Convention stipulates the need for contracting parties to conserve and promote appropriate use of wetland resources

The Gippsland Lakes and its catchments are susceptible to various adverse ecological impacts and consequently, the values of this region need to be protected. The biodiversity environmental values of the Gippsland Lakes include:

- Diversity of important wetland/habitat types and geomorphic landforms
- Support threatened species
- Support fauna during various critical life stages
- Support large numbers of waterbirds
- Provide significant habitat, food and refugia for an array of species

#### 4.1.1 Community Vision and Beneficial Uses

The following case studies provide examples of the community's vision for the biodiversity and natural values of the Gippsland Lakes and catchment.

##### ***The Lake Wellington Wetlands Project***

The landscape between the Avon and Latrobe Rivers has been changing for over 50 years. The rising salinity is driving a change in land-use and the diversity of wildlife that it can support. Greening Australia is partnering with landholders, organisations and local schools to help to understand these changes and assist with new ways of managing native vegetation within the changing system. The two year project is working to restore priority wetland sites and to buffer more productive agricultural land by over 100ha of revegetation activities.

The project will protect and restore migratory bird habitat of species including: Latham's Snipe from Japan and Sharp-tailed Sandpipers from the Arctic that arrive here each year. It will ensure connectivity for wildlife such as the nationally endangered Growling Grass Frogs to move through the wetland systems.

The community's vision is for continued protection of the Gippsland Lakes and catchment, and the flora and fauna that they support through local collaborative involvement. This vision is linked to the following beneficial uses: aquatic ecosystems, aesthetic enjoyment, and cultural and spiritual values.

##### ***Bellbird Corner Riverside Reserve – Community Landcare***

The Bellbird Corner Riverside Reserve at Maffra has been the site of grazing, floods, weed inundation and even a marriage proposal. Bellbird Corner was once used as part of a grazing property but after twenty years of rehabilitation by the local community via the Landcare program, this land is now classed as a Reserve and as such, ensures public access and enjoyment for future generations. Jack Dwyer, Duncan Fraser and Christine Richards from the Bellbird Corner Riverside Reserve Committee

of Management have been part of the community effort to rehabilitate the Reserve. They say that “mistakes were made and erosion took place...in the meantime it became much larger and wider and we lost the old growth in the process and with it we lost the Bellbirds”. A community project that focused on rehabilitating Bellbird Corner and turning it into a Reserve was developed and implemented by the local community under the help and guidance of Landcare.

Due to the surrounding rail trails, State Forest, and State and National Parks, it is easy to assume that Maffra’s community has ample natural open space to enjoy and the Bellbird Corner Reserve is not environmentally significant. However, Jack Dwyer disagrees and says that “the Reserve is a unique asset for the community”. Furthermore, he believes that the Reserve “is very important, it is one piece of river that the public own, that the community can freely come and visit the river and all that goes with it. They’re not intruding on a farmer’s property and that is beyond value”. The voluntary nature of this environmental group and the excellent results that they have already achieved demonstrates the local community’s strong connection to and key role as custodians of the health of the Gippsland Lakes and its catchments. The community’s vision is to protect public access to and enjoyment of the Gippsland Lakes and catchment for current and future generations. This vision is related to the following beneficial uses: aquatic ecosystems, aesthetic enjoyment and cultural and spiritual values.

### ***Rare frogs and ducks return to Heart Morass***

After several years of restoration efforts by the ‘Heart Morass Rehabilitation Project’ run by volunteers, the paddocks along the north side of the Latrobe River are no longer a ‘barren dust bowl’. The area is now a healthy wetland inhabited by the return of rare native flora and fauna species. Matt Bowler works as a River and Wetlands Officer for the West Gippsland Catchment Management Authority. Mr Bowler is also involved in the project, and works with other volunteers from other organisations to plant trees, control weeds and restore wetlands through better managed water and freshwater environmental flows. Mr Bowler said that the area was “fairly desolate” and “it was expanses of salty red dust”. He also said that there have been many droughts and floods over the past few years “but there has been this gradual trend where, with our work, things have been getting better”.

Sea Eagles, water birds, ducks, sugar gliders and antechinus have made returned to the Heart Morass, making the area their home again. With wetter conditions, the Heart Morass has experienced the return of several rare species of frog such as the Growling Grass frog, Green frog and Golden Bell frog.

Gary Howard is a longtime volunteer in the Gippsland Lakes community and is a member of Heart Morass’ management committee. He has seen an increase in the number and species of birds in the area. Mr Howard has witnessed a significant influx of various types of bird species, namely the Freckled duck, which is rare to Heart Morass. Mr Howard said that “it’s great to see these Freckled ducks here. It proves what can happen when you rehabilitate a wetland and get it right. You know we can bring these species back to the area”. The community’s vision is to improve the health of the Gippsland Lakes and catchment for current and future generations to use and enjoy through local involvement and appropriate management of environmental assets. This vision is linked to the following beneficial uses: aquatic ecosystems and aesthetic enjoyment.

### ***The community’s vision for the Gippsland Lakes’ Biodiversity and Natural Values***

There are a number of voluntary-based community projects which focus on conserving and remediating the natural habitat and biota of the Gippsland Lakes and catchment. This demonstrates the community’s vision for the protection of the health of the Gippsland Lakes and catchment through a collaborative approach between government, industry and local community to ensure that the community’s enjoyment of the natural environment will continue well into the future.

## 4.2 Regional Economy

The health of the Gippsland Lakes and catchment, and the flora and fauna it supports are fundamental to the region's local economy whereby various direct and indirect economic benefits are provided through their amenity and landscape value, business operations, commercial and recreational fisheries, and tourism. The economical values of the Gippsland Lakes include:

- The aesthetic value of the Gippsland Lakes is critical to continued investment and expenditure in the region
- Recreational activities such as adventure and eco-tourism, yachting and boating are dependent on the Gippsland Lakes and respective infrastructure, which in turn promotes expenditure in the region's economy
- Access to Bass Strait and the Gippsland Lakes is economically beneficial for the region through off-shore fishing, access to commercial fish species and recreational boating access to the Lakes
- The Latrobe-Gippsland region has a diverse and important agricultural sector contributing 16 per cent of the total gross value of agricultural production in Victoria for 2011–12

### 4.2.1 Community Vision and Beneficial Uses

The following case studies provide examples of the community's vision for the regional economy of the Gippsland Lakes and catchment.

#### ***Recreational Boating and Fishing***

The recreational boating sector in Gippsland provides significant economic and employment benefits to Victoria. The Investigation into Recreational Boating on the Gippsland Lakes study found the estimated annual economic impact of recreational boating totalled \$163.0 million, comprising \$51.4 million in first round impacts and \$111.6 million in flow-on impacts. Boating tourism accounted for the largest proportion of these impacts, with an estimated \$121.5 million total impact.

Recreational fishing in the Gippsland Lakes also contributes significantly to the regional economy and is an important source of enjoyment and relaxation for many people. A detailed survey undertaken between December and March 2014 estimated the expenditure by recreational fishers over the 3 month period was \$1.4 million, with the contribution of these anglers to the local economy being \$500,000 and 5.7 jobs. Recreational fishers spent an average of approximately \$30 per angler per day on fishing related cost such as car travel, accommodation, food, drinks and bait. Recreational fishers taking part in the survey on average valued the benefits they gained from a day's fishing over and above their cost at \$37. This quantifies the extra benefits recreational fishers place on a day's fishing in the Gippsland Lakes.

As important as the economic value, is the high social value associated with the activity. The main reasons anglers gave for fishing were: to be outdoors and enjoy nature, to relax and unwind, the enjoyment of fishing and spending time with family. This vision is linked to the following beneficial uses: aesthetic, enjoyment, cultural and spiritual values, secondary contact recreation, fish, crustacea and molluscs for human consumption and aquatic ecosystems.

#### ***MID technology is a 'win-win'***

In 2013, a three year investment by the State government and irrigators was agreed to modernise and upgrade the Macalister Irrigation District (MID). The upgrade will "save water, boost agricultural output and return water to the environment. Crucially, it will also cut pollution going into the Gippsland Lakes".

The program to upgrade the MID, which has 650 kilometres of delivery channels and about 500 kilometres of drainage area, commenced in 2004 after a feasibility study showed 61 per cent efficiency on the MID's main northern channel system. The aim of the upgrade is to save 15 to 20

per cent of the water. Automated outlets allow the water to be controlled more effectively and enable the farmers to get the water closer to when they wanted it. The new investment will lead to better environmental outcomes by reducing the run-off, such as nitrogen and phosphorus, which go into the Lakes. “The benefit of drying those outfalls has been water quality-related, so they are not moving a lot of those pollutants into the lakes now, and certainly there has been a stronger regulatory framework in terms of retaining dairy waste and wash on farm, the whole story there has been improved quite a bit”.

The community’s vision is to make the best use of water supplies to boost agriculture production while also protecting the environment. This vision is related to the following beneficial uses: water for agriculture and irrigation and aquatic ecosystems.

#### ***The community’s vision for the Gippsland Lakes’ Regional Economy***

The Gippsland Lakes and its catchments provide the local community with a number of economic benefits through its amenity and landscape value, business operations, commercial and recreational fisheries and activities, and tourism. Recognising that the health of the Gippsland Lakes is the key driver in generating regional economic, tourism and community growth, the community’s vision is to protect and promote these opportunities through ongoing government funding to support important and much needed projects in the region.

### **4.3 Social and Cultural Connection**

Cultural and social values form a significant part of the heritage and lifestyle of the Gippsland Lakes and catchment community. The features and benefits of the Gippsland Lakes and catchment are dependent on the health and condition of the waterways, flora and fauna. As such, healthy ecosystems are equipped to support and maintain the region’s heritage, culture and lifestyle. Key social and cultural values that are important to the community include:

- Indigenous and non-indigenous elements of cultural heritage for the Gippsland Lakes create a strong connection for the community. Native Title underpins the Aboriginal custodianship of the Gippsland Lakes Park
- Aesthetics of the Gippsland Lakes provide amenity and recreational attractions for both the local community and visitors to the region
- Boating, water sports, fishing and hunting for recreation benefits both residents and tourists
- Infrastructure and access in the Gippsland Lakes attracts both locals and visitors
- Employment and work opportunities drives regional economy

Diverse landscapes, habitats, cultural features and recreational activities, good accessibility, and strong social and cultural connections promote high social and cultural values for the region, which are dependent on healthy ecosystems to support these. In addition, stories, interests and viewpoints of the Gippsland Lakes enhance the region’s social fabric.

#### **4.3.1 Community Vision and Beneficial Uses**

The following case studies provide examples of the community’s social and cultural vision for the Gippsland Lakes and catchment.

##### ***The Lake Wellington Wetlands Project - Gunaikurnai people***

The Gunaikurnai people are an Indigenous Australian nation that has been living in the Gippsland Lakes region for tens of thousands of years. Approximately 3,000 Gunaikurnai people live in the Lakes region and their traditional ownership of the land is now recognised in law through native title. The Gippsland Lakes region contains many sites of Aboriginal cultural significance ranging from landscape features to burial grounds and middens. The traditional story of Legend Rock at Metung

encompasses Aboriginal cultural values and enables both local and broader communities to acknowledge and understand the region's indigenous cultural heritage. Through the Gunaikurnai people's cultural traditions, they identify the Gippsland Lakes Coastal Park as their Traditional Country.

The Lake Wellington Wetlands Project, which is supporting the transformation of the wetland landscape between the Avon and the Latrobe Rivers, includes cultural heritage mapping. The Gunaikurnai Land and Waters natural resource management crews undertaking cultural assessment prior to weed control and tree planting are also re-discovering the traditional Gunaikurnai pathways through the area and learning how the land was used.

An important component of Greening Australia's Lake Wellington Wetlands Project is cultural awareness days for school students. The involvement of Gunaikurnai elders and artists has been very successful. Students from local schools have participated in Gunaikurnai dance, tasting bush tucker, and listening to dreamtime stories and explanations of the symbols. A particularly popular activity has been the boomerang decoration and learning the art of boomerang throwing.

### ***Australian Research Council Linkage project on Equitable Local outcomes in Adaptation to Sea-Level Rise***

The purpose of this research project is to develop an approach to identifying the social and equity outcomes of strategies to adapt to sea-level rise in the Gippsland Lakes region. As part of this project, interviews with the local community were conducted in order to develop a framework of 'lived values' through learning what people value about living in the Gippsland region. The interviews were designed to understand what the community value about living in Gippsland, why they chose to live there and why they continue to live there.

The most common activities the community valued were going for walks, fishing and boating. Other valuable activities included swimming, water skiing, jet skiing, beach combing and enjoying the aesthetics of the natural environment and landscape. The study confirmed that outdoor activities were the most common activities with fishing and boating being the most popular. From the type of popular activities that took place in the region, the study concluded that places where locals preferred to spend their leisure time were typically near water (beaches, foreshores, esplanades, jetties, footbridges and fishing platforms) or on water (boating on rivers, lakes and inlets).

The research study also found that the local community had a strong connection to places in the Gippsland Lakes region. For example, where they had grown up, where their families lived or used to live and where there are natural, built or indigenous sites of significance. They mentioned these places because they valued their ability to continue to visit these places and the people in them.

The research project demonstrates the local community's strong connection to, and appreciation of living near the water. Local residents valued the availability, accessibility and maintenance of infrastructure that enabled them to take part in various water activities. In addition, the community also valued the strong connection to their family histories and cultural heritage, which in turn gave them a strong sense of belonging and familiarity with the area.

The community's vision is to protect the health of the Gippsland Lakes and catchment to ensure that both the social and cultural values, and the associated activities in, and connections to the region will continue for future generations to appreciate and enjoy. This vision is related to the following beneficial uses: aesthetic enjoyment, aquatic ecosystems, fish, crustacean and molluscs for human consumption, primary and secondary contact recreation, and indigenous and non-indigenous cultural and spiritual values.

### ***The Community's vision for the Gippsland Lakes and catchment social and cultural connection***

The Gippsland Lakes and catchment community appreciates living near water. Associated with wanting to be near water is the community's desire to feel close to the natural environment and thus, are able to participate in various water activities, appreciate and enjoy their surroundings, and the flora and fauna found there. Local residents also value connections to family histories and indigenous cultural heritage. The community's vision is to protect the Gippsland Lakes and catchment to ensure current and future generations can maintain their strong social and cultural connection to the Lakes.

#### **4.4 Catchment and Ecosystem Dynamics**

The environmental values of the Gippsland Lakes are determined by key processes occurring in the catchment, and its role in generating and filtering sediment and nutrient runoff. As such, the health of the Gippsland Lakes is a direct function of the health of the catchment. The Gippsland Lakes and its catchments form a dynamic ecosystem, which involves alternating drought and flood cycles, periodic bushfires and storms. Human activities have influenced and shaped the Gippsland Lakes and catchment for over a century. These include the permanent opening of the entrance to Bass Strait in 1889, extraction of more than twenty per cent of freshwater inflows, agricultural and forestry industries, and urban development. These activities have led to various impacts on the Gippsland Lakes such as eutrophication, reduced water quality and loss of biodiversity.

Although it is not possible to restore the Lakes to its former pristine state, through a collaborative approach, it is possible to improve the health of the Gippsland Lakes and its catchments. Conserving a dynamic, resilient and functioning ecosystem is a vital value of the Gippsland Lakes, and will ensure that other environmental, social and economic values are also protected.

##### **4.4.1 Community Vision and Beneficial Uses**

The following case studies provide examples of the community's vision for the Gippsland Lakes and catchments dynamic ecosystem.

#### ***Greening Australia working with the local community to improve the Gippsland Lakes***

The Avon and Latrobe Rivers have been progressively changing from a freshwater to an estuarine system and consequently, this change has altered the nature of land use and the very biota it supports. As the salinity of the Lakes increases, changes in vegetation occur as well, which subsequently leads to a number of adverse impacts on flora and fauna, as well as humans. Local farmers depend on the land to provide food and income and as such, calls for action have predominantly come from the agricultural industry.

Greening Australia identified the Gippsland Lakes as a priority landscape for restoration. Through the help of ten landholders, eight organisations and eight local schools, one hundred and fifty hectares of land has been revegetated over the past five years. Additionally, Greening Australia and the local community are currently enhancing five hundred hectares of private wetlands of international significance.

The project directly employs local business to undertake activities that enhance the value of their local environment including: rural fencing contractors, nurseries, seed collectors, spray contractors, local farmers, field naturalists, wildlife experts and the new Gunaikurnai Land and Water Aboriginal Corporation NRM works crew.

Landholders have a renewed sense of stewardship and are undertaking farm improvements to improve the long-term productive capacity of the properties around the wetlands.

Local schools are involved in an ongoing program to learn about the wetlands, local flora and fauna, cultural heritage and undertake habitat planting days.

The community's vision is to improve and maintain the health of the Gippsland Lakes and its catchments so that the area is not adversely affected and thus ensure local farmers can continue to use the land for food and income. This vision is related to the following beneficial uses: aquatic ecosystems, agriculture and irrigation, and industrial and commercial use.

### ***Algal blooms in the Gippsland Lakes***

Freshwater inflows from the catchments bring nutrients and sediments to the Lakes. These catchment-derived nutrients are augmented by a significant internal load of nutrients in the Lake sediments. High nutrient loads stimulate algal and plant growth. The Gippsland Lakes experience occasional 'blooms' of algae; these are sometimes dominated by green algae or diatoms, but can also be potentially toxic blue-green algae.

The 2011/12 Gippsland Lakes Blue-Green Algae (BGA) bloom was a significant event. It led to the closure of the commercial fishing industry at Lakes Entrance for a two week period in December 2011 and restrictions on fishing operations for a further 17 weeks. It also necessitated public warnings to avoid eating fish and seafood from the Gippsland Lakes and to avoid contact with affected water. The estimated economic impact on the commercial fishing and tourism industries was \$15 million.

In 2012/13 another algal bloom event occurred and the Department of Health issued an advisory announcing that fish and crustaceans caught in the Gippsland Lakes had the potential to have high toxin levels. The commercial fishing industry was directly affected and although it was deemed safe to swim in the Gippsland Lakes and for recreational users to come into contact with the water, there was an indirect impact on the tourism industry due to the negative publicity associated with the Department of Health's warning on the consumption of fish and quality of the water.

Given the local community's reliance on the agricultural, fishing and tourism industry, algal blooms in the Gippsland Lakes and its catchments will require effective management of a complex and dynamic ecosystem. The community's vision is to protect the Gippsland Lakes and its catchments from the adverse impacts of high nutrient levels, which are the main drivers behind major algal bloom outbreaks in the region. This vision is related to the following beneficial uses: aquatic ecosystems, agriculture and irrigation, industrial and commercial use, fish, crustacea and molluscs for human consumption, aesthetic enjoyment, and primary and secondary contact recreation.

### ***The Care Groups working within the community to improve the Gippsland Lakes***

The health of the Gippsland Lakes is a direct function of the health of the catchment. Reducing nutrient, sediment and pollutant inflows into the Lakes is a key objective.

One of the larger projects to improve the health of the catchment is delivered through the Care Group Network. The Network, comprised of Landcare, Trust for Nature, Greening Australia Gippsland, Fishcare, Gippsland Plains and East Gippsland Rainforest Conservation Management Networks delivers environmental works that enhance biodiversity, as well as building the knowledge and capacity of the community.

During the past year, almost 100 events were held involving almost 1500 individuals in learning to identify weeds, collecting seed, understanding better pasture management, planting trees and monitoring ecological health through activities such as surveying native bird and frog populations.

The Care Groups delivered significant landscape enhancement of over 250 ha of vegetation along the Lake foreshore and within the riparian zones, restoring remnant vegetation and establishing new

vegetation; planting over 40,000 seedlings and sowing 3.58 kg of indigenous seed. Seventy-five hectares of highly significant remnant vegetation were placed under perpetually binding management agreements.

Further, over 1,100 ha of land was treated with integrated pest plant and animal management activities that targeted introduced pasture species, spiny headed matt rush, African Lovegrass, Burgan and blackberry, rabbit, hares, foxes and deer.

The project undertook 80 assessments and surveys to monitor bird populations, animal populations, ecological health and weed presence, species and distribution. Records were made of previously unknown populations of bird species including two migratory species, Latham's Snipe and Sharp-tailed Sand-pipers, and the Black Shouldered Kite.

This army of volunteers contributed 7,126 hours of unpaid labour to projects; nearly 200 weeks of work in the 20013/14 year.

***The Community's vision for the Gippsland Lakes' Catchment and Ecosystem Dynamics***

The Gippsland Lakes and its catchments is made up of highly complex and dynamic ecosystems, and adverse impacts resulting from variations in climate and anthropogenic activities can lead to a number of issues such as eutrophication, poor water quality and biodiversity loss. As such, the community's vision is to ensure that effective and appropriate management of the Gippsland Lakes and its catchments is implemented so that the best ecological, social and economic outcomes for this unique ecosystem will continue to flourish and grow for future generations to enjoy.

## 5.0 Conclusion

Given the Gippsland Lakes community's strong connection to, and concern for the health of the Gippsland Lakes and its catchments, it is imperative that local residents are informed and engaged in order to support good decision-making, lead positive behaviours and practice change. As such, this report explored what the community valued about the Gippsland Lakes and catchment. The condition of the Gippsland Lakes and its catchments were found to be highly important to the community, followed by the health of the flora and fauna found there. Underlying these key values were the community's strong social and cultural connection to the Lakes, which included custodianship of the Lakes, appreciation and enjoyment of the natural landscape and water, recreational activities, and economic opportunities and development.

***Based on the literature reviewed, the community's vision is:***

To improve and protect the health of the Gippsland Lakes and catchment, and life it supports through effective natural resource management policies and initiatives that will provide positive environmental, social and economic outcomes for the region.

This will ensure current and future generations continue to enjoy and appreciate the land, water, plants and animals of the Gippsland Lakes and catchment.

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