



GLENELG HOPKINS CMA
2015-18
PROJECTS



The Glenelg Hopkins CMA region

173
of Victoria's
threatened
species

94
federally-listed
species

Population of approx
130,000

5,400
wetlands
44 per cent of
Victoria's wetlands

220
kilometres
of coastline

480,917 ha
of Crown Land

The region is
26,910
square kilometres

13
endangered
Ecological Vegetation
Communities



Glenelg Hopkins CMA has Project Partnerships with community, landholders, Indigenous groups, Victorian and Australian governments, 11 municipalities, water authorities Landcare and NRM groups and industry.



CEO's update

2015

Welcome

Glenelg Hopkins CMA's vision of achieving a healthy, natural environment and sustainable community use of natural resources relies on strong partnerships at the regional, state and national level.

These partnerships allow us to successfully undertake a wide range of projects funded by both the Victorian and Australian Governments. In alignment with our Regional Catchment Strategy, this provides a coordinated approach to protecting and improving the condition of our land, water and biodiversity resources in the Glenelg Hopkins region.

This brochure describes some of the CMA's key environmental projects, as a snapshot of activities that we will be undertaking over the next few years.

For further information contact Glenelg Hopkins CMA on (03) 5571 2526 or visit our website www.ghcma.vic.gov.au

Kevin Wood
Chief Executive Officer



“The CMA and its partners manage a number of landscape-scale projects that together contribute to making a tangible difference to the health of our catchment.”

Sustainable Agriculture

2015 – 2018

The Project

The Sustainable Agriculture project is funded under the National Landcare Program. It will build the skills, knowledge and capacity of farmers to make and implement land management decisions that will improve soil condition, increase or maintain production and protect the natural resource base.

The project will be delivered through established or new partnerships with industry, government agencies and community-based organisations. Delivery programs will be designed to meet the specific needs of key agricultural enterprises: meat, wool, cropping and dairy.

Community groups, Landcare, production and industry will be supported to investigate innovative farming practices through dependable information sources, on-farm trials and demonstrations.

Building on the 2009-13 Australian Government - 'Reducing the risk of Soil Acidification', this project provides activities that support adoption of sustainable land management practices and innovation across a range of agricultural enterprises.

The project is delivered as four sub-projects. Three align with key agricultural enterprises - broadacre grazing, cropping and dairy - to be delivered in partnership with leading industry organisations and government agencies.

The fourth sub-project supports community-based initiatives to investigate innovative farming practices, with a focus on farmer-led action and facilitating networks.

Opportunities are provided for farmers undertaking change to gain and provide peer support, build confidence and increase capacity as regional leaders.

Talking Points

By 30 June 2018:

- 90 farming entities will have adopted more sustainable land management practices
- Over 22,250 hectares will be under more sustainable land management practices
- 16 farming entities will have trialled innovative land management practices
- 570 land managers will have improved their knowledge, skills and awareness of sustainable land management practices
- 380 farming entities will have improved their knowledge, skills and awareness of sustainable land management practices
- 47 regional community groups will have increased engagement and participation in sustainable NRM.



Sheep Farming - Grangeburn Bocharra

PROJECT PARTNERS

Department of Economic Development, Jobs, Transport and Research, WestVic Dairy, Victorian No-Till Farmers Association, Australian Controlled Traffic Farmers Association, Southern Farming Systems, Demo Dairy, Soil Health Group, Landcare Groups, South West Holistic Farmers, Cultivate Agribusiness Central Highlands, Sustainable Agriculture and Community Alliance, Grasslands Society of Southern Australia, Deakin University

FUNDING & INVESTORS

Australian Government - \$1,314,041

Threatened species and communities

2015 – 2018

The Project

Threatened species programs remain a high priority throughout the Glenelg Hopkins region.

The project area is primarily focused on the Victorian Volcanic Plains (VVP) and Goldfields Bioregions, both of which are regional, state and national priorities.

Target threatened species include Striped Legless Lizard, Eastern Barred Bandicoot, Golden Sun Moth, Red-tailed Black Cockatoo, Swift Parrot, Brolga and ten threatened flora species.

Four nationally threatened Ecological Communities will be targeted through this project: Natural Temperate Grasslands, Grassy Eucalypt Woodlands, Grey Box Grassy Woodlands and Seasonal Herbaceous Wetlands.

A range of targeted extension and monitoring activities across the project area will be delivered to reduce critical threats to, and enhance the condition, connectivity, resilience and knowledge of, threatened species and communities.

Talking Points

- **The Threatened Species sub-project** will be delivered by DELWP and Birdlife Australia, and will work with a range of partners and community groups to protect and enhance 2,200 ha of existing nationally-listed ecological communities and manage 85,330 ha for threatened species.
- **The Protection of Ecological Communities sub-project** will work with a range of partners and community groups to continue to protect and enhance 625 ha of the 33,600 ha of existing nationally listed ecological communities.
- **The Engagement sub-project** will work with a range of partners and community groups to deliver two key five-year outcomes:
 - 1) promote the continued use, support and reinvigoration of Indigenous ecological knowledge to underpin biodiversity conservation.
 - 2) build community capacity and connection with the environment through activities that re-establish urban bushland, areas of Indigenous significance and the health of urban waterways.
- **The Grassland Monitoring sub-project** will work with two delivery partners and numerous landholders to better protect and conserve nationally and internationally significant ecosystems, species, ecological communities and landscapes.

PROJECT PARTNERS

Department of Environment, Land, Water and Planning, Birdlife Australia, Trust For Nature, Corangamite CMA, Port Phillip and Westernport CMA, local government, CFA, Arthur Rylah Institute, landholders

FUNDING & INVESTORS

Australian Government - \$2,649,182



Brolgas at Kurtonitj, an Indigenous Protected Area near Heywood (courtesy of Vin Gannon)

Catchments for Communities

2012 – 2016

The Project

The 'Catchments for Communities Program' delivers works to high priority rivers, estuaries, wetlands and community assets in the Glenelg Hopkins region. The region has three main river drainage basins - the Hopkins, Glenelg and Portland Coast.

This program encompasses all three basins to provide maximum economic, social and environmental benefits to communities in the region.

The program builds on the substantial work previously undertaken by the CMA in partnership with the community across the region - in particular the Glenelg River Restoration Project.

There will be noticeable economic benefits from this program with more than \$2.5 million provided directly to landholders as incentive payments and over \$5 million injected into the Glenelg Hopkins region between 2012-2016, to provide employment opportunities and support local businesses.



This project includes protection and enhancement works on our region's estuaries

Talking Points

The Catchments for Communities Program consists of three projects in different areas:

- Coastal
- Regional
- Glenelg
- **The Coastal Catchments for Communities Project** focuses on protection and enhancement of priority rivers, wetlands and estuaries in the coastal region through estuary entrance management, landholder engagement and development of Waterway Action Plans.
- **The Glenelg Catchments for Communities Project** aims to improve waterway condition and biodiversity values in priority reaches of the Glenelg and Wannon Rivers through partnerships to achieve land management that delivers both agricultural viability and ecological sustainability.
- **The Regional Catchments for Communities Project** aims to reduce threats to high priority waterways in the Glenelg Hopkins region whilst supporting and involving the community in natural resource management.

- The program will support nomination of the Long Swamp/lower Glenelg River estuary as a Ramsar site. There is broad community support for this nomination, which is included as an action in the Glenelg Hopkins Waterway Strategy.
- The project will support a small Works Crew to secure high value community assets and increase capacity of the CMA to respond to extreme climate events.

PROJECT PARTNERS

Landholders, Landcare and Community Groups, Angling Clubs, local government, Vickery Bros, Catchment Health Engineering, SARDI, Australian UAV

FUNDING & INVESTORS

Victorian Government - \$3,180,000



The substantial work already undertaken along the Glenelg River will continue

Case Study

Carp Monitoring and Control Program

The Project

Glenelg Hopkins CMA was awarded the River Basin Management Society's Award for Innovation in Waterway Management in October 2015 for the Carp Monitoring and Control Program.

Prior to undertaking this strategic and focused carp program, Glenelg Hopkins CMA and the wider natural resource management industry had little knowledge of carp behaviour, population size and distribution in the Glenelg River system. The carp program between 2012-2015 has included a combination of Judas carp trials, the 'Text-a-Carp' program, and investigation into harvesting strategies.

Glenelg Hopkins CMA is now using ground-breaking approaches to track and control carp in the Glenelg River. In 2012, the CMA partnered with VEMCO and the South Australian Research and Development Institute (SARDI Aquatic Sciences) to design a focused and cost-effective carp tracking system.

Arthur Rylah Institute (ARI) have also contributed equipment and expert advice, whilst the Department of Environment, Land, Water and Planning (DELWP) and the Victorian Environmental Water Holder (VEWH) have funded the program.

The tracking system takes advantage of the congregating habits of the carp and utilises a 'Judas' fish - a tagged fish that provides information on the patterns and distributions of large carp groups - allowing more effective targeting and eradications.

The CMA has also expanded its carp identification and reporting program to incorporate social media (Facebook and Twitter) and smart phone technology. Community members text carp catches (Text-a-Carp), to the CMA. This information is used along with the 'Judas' carp tracking project to help map carp distribution and abundance. To date, 178 community members are registered with the 'Text-a-Carp' program.



Dr Leigh Thwaites (SARDI) performing acoustic tag surgery on a Glenelg River carp

Case Study

Fiery Creek Restoration Project

The Project

The Fiery Creek Restoration Project is protecting and restoring the upper reaches of Fiery Creek which contain some of the best examples of remnant riparian vegetation and physical habitat in the Upper Hopkins Basin.

Substantial management attention has been directed to the Fiery Creek over the last few years with community action, and more recently flood recovery programs. Much of this work has focussed on the lower reaches of Fiery Creek. However, the CMA understands the importance of working in the upper reaches of the Fiery Creek catchment, and sees this as a priority.

Fiery Creek flows into Lake Bolac, which is an important site for fishing and tourism, hence activities to improve water quality are a key focus. The Lake Bolac community and the surrounding district are strong advocates for improved catchment management and are supportive of these actions being extended to the upper reaches of the catchment.

The Fiery Creek Restoration Project implements planning and works to support activities undertaken by the Beyond Bolac Community Action Group, Upper Mt Emu Creek Landcare Network and Upper Hopkins Landcare Group. This will support the preliminary planning work already undertaken by these groups and provide important linkages for past works undertaken along Fiery Creek.

The Fiery Creek Restoration Project aims to consolidate past works to stabilise banks, improve water quality and habitat for listed threatened species and communities such as the Mountain Galaxias, Brush-tailed Phascogale, Macquarie Perch, Little Galaxias, Grassy Eucalypt Woodland and Natural Temperate Grassland communities.

In 2014-15 efforts built on community interest and partnerships established in the previous year with a coordinated cross tenure approach involving landholders, Department of Environment, Land, Water and Planning (Good Neighbour Program), local government (Pyrenees Shire Council and Ararat Rural City Council), the Beyond Bolac Community Action Group and the Upper Hopkins Land Management Group.

Projects have been developed with landholders to achieve a total of 81.6 ha assessed and targeted for woody weed control to date.

This project also complements the Australian Government funded Grampians to Pyrenees Biolink Project.



Fiery Creek Waterhole

Coastal Connections

2015 – 2018

The Project

The Coastal Connections project is working with community groups, Indigenous trainees and private land managers to protect and restore coastal, estuarine and wetland habitat.

This project protects coastal habitat through:

- multiple year conservation management agreements with private landholders
- permanent protection under Conservation Covenants
- management activities for endangered coastal plants.

Management activities include: stock exclusion, weed and pest control.

Coastal Connections supports employment of Indigenous trainees, providing an opportunity to share knowledge and build skills in Natural Resource Management.

Coastal community groups are supported through grants for activities that focus on protection and rehabilitation of coastal habitat, as well as the engagement and education of local communities.

This project is supported by Glenelg Hopkins CMA, through funding from the Australian Government's National Landcare Programme.



Hooded Plover photographed by Glen Ehmke



Talking Points

- Coastal Connections is in its third of five years' funding.
- The project is funding management activities on 285 hectares of high value coastal habitat on private land (that is 143 MCG's!)
- The total area on the coast that is protected under Management Agreement has increased five-fold!
- The project has established permanent protection through a Conservation Covenant on 83 hectares.
- This has increased the total area on the coast in the Glenelg Hopkins CMA region that is permanently protected by 30%.
- The project has established a great working relationship with Worn Gundidj, which has resulted in the training and further employment of an Indigenous recruit.
- Ten community groups have successfully run field days, working bees, tours and fox drives.
- The project has just announced funding for another 12 groups.
- Endangered coastal plants - Mellblom's Spider-orchid, Limestone Spider-orchid, Coast Dandelion, Maroon Leek-orchid and Metallic Sun-orchid - are benefitting from specific management activities.
- One new population of Mellblom's Spider-Orchid (*Caladenia hastata*) was discovered. This has increased the number of known populations from three to four.

PROJECT PARTNERS

Coastal Community Groups, Land managers, Worn Gundidj Employment Agency, Trust For Nature, Department of Environment, Land, Water and Planning

FUNDING & INVESTORS

Australian Government - \$1,466,226



Coastal vegetation

Indigenous Partnerships Projects for Improved NRM

2013 – 2018

The Project

Glenelg Hopkins CMA is working with Traditional Owner groups and Indigenous communities to build capacity to participate in natural resource management activities.

The project will be delivered as a partnership, providing opportunity for the two-way exchange of knowledge and experience. Traditional Owner groups will be equipped with the knowledge and skills to collect, record and appropriately archive Indigenous Ecological Knowledge.

Indigenous community members will be engaged in capacity building activities, information exchange events and mentoring and secondment services.

Talking Points

- Since 2002 the Gunditjmara community and Glenelg Hopkins Catchment Management Authority have collaborated on over 15 different natural and cultural resource management projects.
- A curriculum-based junior ranger program is being run in partnership with Baimbridge College and Gunditj Mirring Traditional Owner Corporation to build awareness and interest amongst Indigenous and non-Indigenous students about Gunditjmara people and culture, Indigenous Ecological Knowledge (IEK) and past and contemporary land management interests in South West Victoria.
- Since June 2013, 15 landholders and interest groups have been involved in the Yarns on Farms extension program with Gunditj Mirring TOAC.
- In partnership with Corangamite CMA and Native Title Services of Victoria, the Glenelg Hopkins CMA has supported the development of the Eastern Maar 'Whole of Country Plan'.
- The Glenelg Hopkins CMA has funding through DELWP to support a 2 year Indigenous trainee position.



Junior Ranger Program: to build awareness and interest amongst Indigenous and non-Indigenous students about Gunditjmara people



Traditional Fire Knowledge Workshop: a two-day training and capacity building workshop

PROJECT PARTNERS

Gunditj Mirring TOAC, Eastern Maar Aboriginal Corporation, Martang Aboriginal Corporation, Wathaurung Aboriginal Corporation, Barengi Gadjin Land Council, Windamara Aboriginal Corporation, Framlingham Aboriginal Trust

FUNDING & INVESTORS

Australian Government - \$934,535

Aboriginal Water Values - pilot

2015 – 2016

The Project

Glenelg Hopkins CMA, in partnership with Gunditj Mirring Traditional Owners Aboriginal Corporation and Barengi Gadjin Land Council, has funding from DELWP to develop an Aboriginal Water Values project for the Glenelg River system from July 2015 to December 2016.

The Glenelg River starts in the Victoria Valley of the Grampians Mountain Ranges and runs for over 500 kilometres to the Southern Ocean. One of the longest rivers in Victoria, a short stretch of the estuary winds through South Australia before returning to Victoria. The Glenelg River is valued by Victorians and South Australians for its high social, economic, cultural and environmental attributes.

The Glenelg River runs through two Traditional Owner areas, managed by Gunditj Mirring TOAC and Barengi Gadjin Land Council. The Glenelg River system is recognised as being very important to both groups. This project aims to capture some of the significant Aboriginal Water Values for the Glenelg system.

Aboriginal water research is required to ensure that Aboriginal water requirements and preferences are understood sufficiently. This will facilitate informed discussion on how Aboriginal values and uses can be delivered through Victoria's existing water resource planning and implementation processes. To achieve this, an understanding of the intersection and overlap between ecological and cultural outcomes is essential.

Glenelg Hopkins CMA develops the Environmental Water Management Plan (EWMP) for the Glenelg River. An EWMP is a scientifically-based management plan that sets long-term objectives for priority environmental values that receive environmental water. It provides the 5-10 year management intentions, based on both scientific information and stakeholder consultation.

As part of the EWMP process the CMA will work with relevant Traditional Owner groups to identify Indigenous values of the Glenelg River system supported by the current environmental flow program. Sharing this knowledge is expected to enrich environmental water management in the Glenelg River.

Talking Points

- Aboriginal Water is an emerging term that is increasingly being utilised by Aboriginal groups and academics to describe the full range of Aboriginal interests and aspirations in water. It encompasses both 'Aboriginal environmental outcomes' and 'cultural flows' and identifies improvements in environmental outcomes and economic benefits for Aboriginal communities.
- Cultural flows have been defined as "water entitlements that are legally and beneficially owned by Indigenous Nations of a sufficient and adequate quantity and quality to improve the spiritual, cultural, environmental, social and economic conditions of those Indigenous Nations.
- The Glenelg River and Wannon River are major contributors to the Wimmera – Glenelg supply system. Flow is diverted from the Glenelg River via Moora Moora Reservoir and at Rocklands Reservoir. Rocklands Reservoir is the largest storage in the Wimmera-Mallee supply system with a total storage capacity of 348,300 ML. Environmental releases are made to the Glenelg River via the Rocklands Reservoir Wall outlet or by using the 5 Mile and 12 Mile outfalls along the Rocklands – Toolondo Channel.



Glenelg River at Frasers Swamp

PROJECT PARTNERS

DELWP, Gunditj Mirring Traditional Owners Aboriginal Corporation, Barengi Gadjin Land Council, Glenelg Hopkins CMA

2014 – 2018

This six year project will result in significant, cost-effective biodiversity gains through the creation of biodiverse carbon sinks.

While there are large sections of high conservation value native vegetation secured through numerous parks and reserves, the vegetation is often fragmented, especially across private land.

- The project aims to establish a well-connected and functioning native ecosystem in south eastern Australia to improve species movement and migration, particularly ground-dwelling mammals.
- A multi-criteria spatial analysis across all Biolinks has identified priority areas where biodiversity and carbon sequestration benefits are maximised and costs and constraints minimised.
- Annual Catchment Action Plans (CAP) on all Biolink sites will provide a detailed understanding of the condition, environmental issues and landholder attitudes and drive a prioritised on-ground works program.



Aquatic Herbland - Wilkin Biolink Area

Australian Government - \$2,520,000

Grampians to Pyrenees (G2P) Biolink

2015 – 2018

The Project

The Grampians to Pyrenees Biolink is a key component of the Great Eastern Ranges Wildlife Corridor, situated at its western extremity linking it to the Grampians National Park and the Habitat 141 Wildlife Corridor.

This project will work with regional partners to increase carbon stores and improve connectivity between the Grampians and the Pyrenees Ranges for a variety of nationally threatened species.

Core remnant vegetation patches will be connected by 225 ha of revegetation, the condition of remnant patches improved over 215 ha and key threats to remnant vegetation such as invasive species addressed across 2,630 ha.

A 'Connectivity Plan' will also be developed to determine the highest priorities into the future.



Talking Points

The delivery areas for the project within the Glenelg Hopkins region will be:

- Upper Hopkins, from the Ararat Hills in the north to Maroona in the south west. This will adjoin the remnant vegetation areas of the Langi Ghiran State Park and the Ararat Hills Regional Park, and develop habitat linkages by connecting the Hopkins River habitat corridor with Langi Ghiran.
- Buangor, linking patches of public woodland through habitat corridors from the east of Langi Ghiran State Park to the south west of Mt Buangor State Park.
- Upper Fiery Creek, from Mt Cole through to Raglan, to Middle Creek. This will improve the linkage between the woodland areas of Mt Cole and those of the hills to the west of Beaufort.
- Upper Mount Emu Creek and Trawalla Creek from Waterloo and Langi Kal Kal in the north to Mount Emu further south. Works will improve the linkage between the Ben Major Forest Reserve and the remnant woodland area to the east of Beaufort. Stock exclusion and revegetation works will be focussed on the Trawalla and Upper Mount Emu Creeks to achieve these linkages.



Upper Hopkins - Corridor Linkages across the landscape

PROJECT PARTNERS

Trust for Nature, CVA, The Upper Hopkins Land Management Group and the Upper Mount Emu Creek Landcare Network

FUNDING & INVESTORS

Australian Government - **\$1,800,000**

Habitat Tender

2014 – 2018

The Project

Habitat Tender Agreements are protecting 992 ha of high value native vegetation over a five year period.

Habitat Tender was delivered in partnership with Wimmera CMA and aims to improve the quality and extent of native vegetation in South West Victoria.

The project links area links the forests of south west Victoria and the Mallee country. It contains highly significant grassy and heathy woodlands and is home to a wide range of regionally and federally recognised threatened species. It has been identified as being of strategic importance and very high natural value.



Talking Points

- Funding of \$2.5 million for a joint Glenelg Hopkins and Wimmera CMA Victorian Environmental Partnership Program (VEPP) with landholder agreements signed in October 2014.
- VEPP funding is providing \$389,877 to landholders in the Glenelg Hopkins region.
- 992 ha of high value vegetation is protected under five year agreements.
- Management may include exclusion of grazing stock from remnants, targeted pest plant and animal eradication, and in some cases the supplementary planting of indigenous vegetation alongside remnants.

PROJECT PARTNERS

Wimmera CMA, Department of Environment, Land, Water and Planning, landholders.

FUNDING & INVESTORS

Victorian Government - \$2,500,000

Impacts of Cropping on Wetlands

2015 – 2016

The Project

This project aims to identify and document the current and future risks of agricultural cropping to the condition and values of naturally occurring wetlands in Victoria.

Scientific evidence on the risk to wetland condition from agricultural cropping in Victoria is very limited. However some data, observations by natural resource managers and other factors suggest that cropping is a driver of environmental condition in wetlands that warrants further investigation to determine the risks and their significance.

Wetlands support a range of environmental, social, cultural and economic values that rely on environmental conditions which, if degraded, can be diminished or lost. The environmental condition is determined by key drivers such as habitat, water quality, water regime and connectivity.

This project will review existing scientific literature, spatial data and expert opinion and provide:

- Strategies to address the risk of cropping in wetlands;
- Guidelines for NRM professionals on assessing and managing risk
- Recommendations for future projects to improve knowledge.



Composite image of two wetlands. The left side shows a native Seasonal Herbaceous Wetland. The right side is the same wetland type that was sown into a cereal crop.

PROJECT PARTNERS

DELWP, ARI, Victorian CMAs, Charophyte Services

FUNDING & INVESTORS

Victorian Government - \$60,000

Floodplain and Waterway Management

The Project

Statutory services is the service and support division of Glenelg Hopkins CMA, which delivers waterway statutory functions for floodplain, drainage and waterway management under the Water Act 1989 and corresponding CMA Statement of Obligations.

The team is continually improving flood information for the region while supporting response & recovery agencies.

The waterway management function provides assessments of proposed works on designated waterways to ensure that the waterway health impacts are minimised through the issue of licences, with specific conditions.

The floodplain management function provides assessment of proposed development on land liable to flooding, or any land for which a person requests flood information. The CMA also has responsibilities to develop and hold flooding information for the region in order to improve flood information intelligence.

Talking Points

The team offers support to local government VicSES and other government authorities to:

- Ensure development is not affected by flooding
- Protect waterway values subject to works
- Prepare and develop funding bids for flood related projects
- Assist in planning for flood emergencies
- Assist in responding to flood emergencies
- Review Municipal Flood Emergency Plans
- Facilitate discussions regarding possible flood mitigation and warning projects
- Develop and document flood information.

Case Study - Harrow Flood Investigation

Glenelg Hopkins CMA, in partnership with the West Wimmera Shire Council has received Victorian and Australian Government funding to undertake the Harrow Flood Investigation.

The township of Harrow is located on the banks of the Glenelg River and is at high risk of being flooded during large storm events. Much of the Harrow CBD and a number of properties are located within the floodplain and subject to inundation.

Resilience to major floods is low given the infrequency of large floods and lack of community knowledge around the issue of flooding. Flood response planning for Harrow is currently compromised by inadequate flood intelligence and mapping information.

This flood investigation will inform the community of the flood risks within Harrow and to assist them to prepare for future floods.

The investigation will include hydraulic and scenario modelling, flood intelligence documentation, flood damage and mitigation analysis and recommendations for the Planning Scheme Amendment. Community consultation will be undertaken at these key stages of the investigation.



Glenelg Hopkins CMA develops flood studies as part of its Statutory Services

Case Study

Flood Warning Improvements

Ararat Flood Investigation

In 2015, the Glenelg Hopkins CMA and partners, along with the local Ararat community completed the Ararat Flood Investigation.

Flooding hit Ararat and surrounding communities in 2010 and 2011 with virtually no flood warning or intelligence available to inform flood preparation and response. During the 2011 flood event, major roads in and out of Ararat were inundated, isolating the township from surrounding rural communities.

The results of the flood investigation informed the community of the flood risks within Ararat and assisted them to prepare for future floods.

The investigation involved the technical study of flooding behaviour to determine how hazardous floods are by identifying the extent, depth and velocity of floods of different magnitudes.

Flood investigations help with identifying risks, making planning decisions, and preparation for emergency response.

Study consultants Water Technology were awarded the contract to undertake the Ararat Flood Investigation. Three community consultation meetings were held to receive information from the community about historic flood events in and around Ararat and to discuss mitigation options.

Mapping has been produced which identifies extents, levels and depths of flooding for a range of different flood events. An analysis of historic flood levels has found that flooding on the Hopkins River in 2011 was slightly smaller than the 1% AEP (Annual Exceedence Probability) design flood event, also known as the 1 in 100 year flood.

At the completion of the investigation, the flood intelligence collated will be used by the Glenelg Hopkins CMA and incorporated in the Ararat Rural City Planning Scheme and Municipal Flood Emergency Plan.



Case Study

Environmental Water Management

The Project

Glenelg Hopkins CMA manages river health works and environmental watering in an integrated way. Major reservoirs and channel systems have been built to take water from the Glenelg River for a range of purposes. These structures are major barriers to fish migrating through the upper reaches of the river. Reservoirs also change the timing, magnitude and duration of stream flows. Flows are integral to the lifecycles of many plants and animals along with being the driver of processes that affect the shape of the river. Rocklands Reservoir was built in 1953 and has resulted in reduced diversity and abundance of fish and plant populations. The reservoir captures small and moderate floods which has reduced scouring of the deep pools that the Glenelg River is known for.

Continued community concerns about the impacts of Rocklands Reservoir led to the creation of an Environmental Entitlement (EE) in 2004 which was added to following the completion of the Wimmera Mallee Pipeline in 2010. The EE is shared between the Glenelg and Wimmera rivers. Now a portion of the water diverted at Rocklands Reservoir near Balmoral is returned to the river as environmental flows.

Environmental flows are targeted to achieve specific objectives such as supporting fish migration, improving water quality and distributing riparian plant seeds along the river. Environmental flows are integrated with other supporting works to maximise environmental benefits.

Riparian management

Reducing stock access to river banks improves the survival of instream and riparian vegetation such as the flow dependant *Callistemon wimmerensis*. Protecting sensitive banks from stock trampling also slows the rate of bank erosion and protects water quality.

Sand management

Sand entering from catchment erosion has filled many of the deep pools along the Glenelg River. The reduced flows resulting from damming the river have been unable to scour the sand from the pools and many important summer refuges have been lost. Sand is mechanically extracted from suitable sites along the river on a commercial basis. The holes created provide deep water habitats in areas with little streambed diversity. Environmental flows are important for maintaining depth and water quality between these refuge areas.

Fish barriers

While reservoirs along the Glenelg River present large barriers that fish cannot move past, many smaller weirs, culverts and crossings can also prevent fish moving upstream. Recent works to install fish ladders past these barriers have used information about environmental flows to ensure that fish ladders work best at flow rates where fish are likely to be migrating.

Fish habitat

The fish species endemic to the Glenelg River are strongly dependant on large wood for habitat. Large wood was removed from the Glenelg through the middle of last century. Restoring wood to key sites as fish habitat had increased the carrying capacity of reaches in the Glenelg River. Environmental flows attract fish into these areas of habitat and as river levels rise and fall, different components of the habitat become available to fish.



Glenelg River downstream of Casterton

Case Study

VEFMAP

The Project

The Victorian Environmental Flows Monitoring and Assessment Program (VEFMAP) evaluates ecosystem responses to environmental flows in eight regulated rivers across the state. The Program monitors water quality, native fish and riparian vegetation to determine the ecological importance of environmental water to the health of the river systems.

VEFMAP surveys on the Glenelg River started in 2009 and coincided with significant environmental flow releases between 2011 and 2015. The overarching objectives are the assessment and analysis of data collected, primarily for native fish and riparian vegetation, to demonstrate the ecological importance of environmental water use in the state of Victoria.

The surveys reveal a positive response from native fish to flow, with fish moving into new areas and successfully recruiting to re-establish stocks after the prolonged drought period. Additionally, environmental flows reduce salinity and contribute to improved water conditions.

VEFMAP fish surveys have indicated increased numbers of recreational and rare fish species coinciding with delivery of environmental flows. Upstream migration of native estuary-dependent fish such as, estuary perch and tupong, have also increased. Tupong (pictured) has been recorded migrating over 300 km from the Glenelg River estuary mouth to Balmoral - an historical stronghold for this species.

VEFMAP is a collaborative program involving five Catchment Management Authorities, Department of Environment, Land, Water and Planning and the University of Melbourne. The monitoring helps Glenelg Hopkins CMA make informed decisions regarding timing and volume of environmental flow releases to the Glenelg River.



Native Tupong



VEFMAP fish survey on the Glenelg River using electrofishing

Merri River Habitat Hotspot Project

The Project

The Merri River Estuary in Warrnambool is a popular recreational fishing location. Two complementary projects are enhancing fish habitat and improving access for fishing on the waterway.

Two floating fishing jetties will be installed in the lower section of the estuary adjacent to open recreational land. The water levels in the estuary change with the tides and when the estuary mouth closes, and the floating jetties provide a stable fishing platform that is accessible at different water levels.

The banks of the estuary will be further enhanced by removing the woody weeds and revegetating the area with native plants. This project is funded through recreational fishing licence fees and delivered by the Glenelg Hopkins CMA in partnership with Warrnambool City Council.

The Australian Government is funding in-stream fish habitat works in the same section of the estuary. Recent fish surveys conducted by Arthur Rylah Institute have shown popular angling species black bream, estuary perch and mullet use this section of river.

Two different structures are being installed to create a fish 'habitat hotspot'; rock piles and a wooden 'fish hotel'. The introduced structure increases fish habitat which benefits these fish species and also increases habitat diversity for other aquatic animals.

The Merri River Habitat Hotspot site has been the focus of several community events to promote the value of both in-stream habitat and riparian vegetation to fish species.



Trial of wooden Fish Habitat for the Merri Estuary



Fish Habitat being reinstalled at the Merri Estuary

Case Study

Ramsar Nomination

The Project

The Convention on Wetlands of International Importance came into being in the township of Ramsar in Iran in 1971. It is the only international Convention to focus on a single ecosystem type and recognises wetlands as one of the most threatened habitats globally. The Convention seeks to promote conservation and wise use of wetlands by listing wetlands of international importance. Australia was one of the first countries to sign up to the Convention, which is now currently referred to as the Ramsar Convention.

The Ramsar Convention aims to halt the worldwide loss of wetlands and to conserve, through wise use and management of those that remain. Currently 169 countries are signatories of the Convention with over 2,200 wetlands listed. Australia has 65 sites, the last listed being Piccaninnie Ponds in 2013, with 11 sites located in Victoria.

In January 2014, the Hon. Dr Denis Napthine, Premier of Victoria announced at a community function in Nelson that Glenelg Hopkins CMA will use its winnings from the Australian Riverprize to complete the necessary listing documentation to nominate the Glenelg Estuary and Long Swamp Wetland Complex as the next Victorian Ramsar site.

Listing of the Glenelg Estuary and Long Swamp area as a new Ramsar site provides benefits in protecting highly significant wetland values, raising the profile of the wetlands and increasing the level of support for the use of this area. Additional benefits include enhancing tourism and contributing to wider local and regional economic sustainability.

The Ramsar nomination process is a collaborative effort, with all levels of local, state and federal government joining the partnership alongside the Glenelg Hopkins CMA, including: Parks Victoria, Gunditj Mirring Traditional Owners Corporation, community groups such as Nature Glenelg Trust and Nelson Coastcare, land owners, primary producers and forestry companies.

An important element of the application is the importance of Indigenous cultural values, including food sources, meeting places and maintenance of the cultural character of the site. The Gunditj Mirring Traditional Owners Corporation, primary guardians, keepers and knowledge holders of Aboriginal cultural heritage in the area are providing guidance and partnering with Glenelg Hopkins CMA to strengthen the nomination.

The proposed boundary of the Ramsar site will include Discovery Bay Coastal Park and the Lower Glenelg National Park, upstream to where the Glenelg River enters the park.

Businesses, land owners and day-to-day land users won't be impacted by a successful Ramsar listing, as every element nominated in the application is already protected. This means existing regulations won't change.



Glenelg Estuary

Case Study - Waterway Management Masterclass and Twinning Project

The Project

Glenelg Hopkins CMA is currently running a Waterway Management Twinning Program. The program pairs river management professionals from across South-Eastern Australia with the purpose of collaborating to deliver world class river protection and rehabilitation projects.

The Program has arisen from the CMA's 2013 Australian Riverprize win, from which the CMA was given \$50,000 by the International River Foundation and Australian Government to deliver a knowledge sharing and capacity-building project.

The Program currently has ten participants from six organisations including: North Central CMA, OzFish Unlimited, the Arthur Rylah Institute, Melbourne Water, the Basalt to Bay Landcare Network and Glenelg Hopkins CMA. These participants have formed four partnerships, often in the form of mentor and mentee.

For the next year, these partnerships will work together on specific waterway management projects. Grants have been provided to support the partnerships, primarily to cover travel costs associated with travelling to each other's regions.

Glenelg Hopkins CMA has been fortunate to enlist the assistance of Dr Siwan Lovett in the running of the Twinning Program. Dr Lovett is well known and much respected in Australian River Management networks being Director of the Australian River Restoration Centre, an Australian Riverprize Judge, editor of the RipRap magazine and co-presenter/facilitator of the Peter Cullen Trust Science to Policy Leadership Program.

The Twinning Program commenced in August with all participants attending a three day workshop in Warrnambool and Melbourne. The workshop, led by Dr Lovett, proved to be both inspiring and insightful, and established strong professional bonds throughout the entire group.

The group will meet as a whole twice more – once in February 2016 to check in on progress of individual projects and then in July to wrap up the Program and celebrate its collective achievements.

Glenelg Hopkins CMA will be seeking sponsorship opportunities to allow the Twinning Program to be run again in the future.



Participants of the Waterway Management Twinning Program during a three-day workshop in Warrnambool

Glenelg Hopkins CMA

10 regional facts

1. In 2013-14 Glenelg Hopkins region was the highest producer of agriculture commodities by gross in Victorian NRM regions, producing 15% of Victoria's agricultural commodities from 12% of the land area, and third highest in Australia.
2. In 2013-14 Glenelg Hopkins region, with 5,726,020 sheep and lambs was number 1 in Australia; with 905,558 head of cattle plus 356,76 dairy cattle, was the highest of any Victorian region; plus 22 wine producing businesses, 2,666 farm businesses and cropping on 1,909,819 ha.
3. The Glenelg Basin is one of 15 nationally listed 'Biodiversity Hotspots'. Only two exist in Victoria and both are found within the Glenelg Hopkins CMA region. The other hotspot is the Victorian Volcanic Plains.
4. The Glenelg Basin contains more than 150 threatened species and ecological communities. It contains 10% of Victoria's threatened species.
5. The Glenelg Basin supports more than 20 threatened species of orchid, with at least 10 listed nationally.
6. South West Victoria has the longest south-facing shoreline in the southern hemisphere with 85% of its marine species found nowhere else in the world.
7. There are 70 active Landcare groups across the region.
8. Glenelg Hopkins has the highest score across Victoria for people being involved in rehabilitating native habitat, according to a Statewide Social Benchmarking Report.
9. According to 2011-12 ABS data, more farmers in the Glenelg Hopkins region participated in Australian Government funded NRM projects than any other Victorian NRM region with 9.2% participating of more than 4,000 regional farm businesses surveyed.
10. More than 80% of Glenelg Hopkins is used for agricultural production.

WORKING WITH GLENELG HOPKINS CMA

Address: 79 French St, PO Box 502, Hamilton, Vic, 3300
Phone: +61 3 55 712 526
Fax: +61 3 55 712 935
Email: ghcma@ghcma.vic.gov.au
Website: www.ghcma.vic.gov.au

Facebook: www.facebook.com/GHCMA
Twitter: www.twitter.com/GHCMA
Instagram: www.instagram.com/GHCMA
YouTube: www.youtube.com/GHCMA

