

East Gippsland Regional Floodplain Management Strategy Implementation Report 2017-2023

Executive Summary

Victoria's Regional Floodplain Management Strategies are approaching five years of implementation, this implementation report for East Gippsland has been prepared to review progress and to provide a summary to the Department of Environment, Energy and Climate Action (DEECA).

Of the actions detailed in the East Gippsland Floodplain Management Strategy (EGFMS) 2017, 47% have been marked as 'Complete' and are now business as usual for the relevant agencies. Another 47% of the actions are currently in progress and are being actively addressed by the East Gippsland Floodplain Management Plan Implementation Committee and partner agencies. The remaining 6% of actions are being reviewed by the Committee and the partner agencies to determine if they are still a priority.

There were several unpredictable events throughout the implementation period of the EGFMS including landscape scale bushfires, significant flooding in the East and the Covid-19 pandemic. Despite these obstacles impacting on the delivery of the strategy actions, many significant achievements were delivered for the East Gippsland region. Including:

- Local Flood Guides containing new modelling information drafted for eight key localities.
- Flood modelling for eight key localities, including: Mitchell River, Snowy River, Swifts Creek, Buchan, Bemm River and Cann River, Genoa and Dargo
- Extensive community engagement to discuss flood modelling throughout 2021-2023
- Additional flood modelling completed for the Genoa and Lindenow localities
- Interagency collaboration, including the Bureau of Meteorology touring the catchments to discuss catchment hydrology, current flood warning systems, gauging and potential improvements
- Installation of over 14 flood warning signs across low lying roads
- Installation of new river height and weather gauges at priority places

During 2024 the EGFMS Implementation Committee will conduct a series of workshops with partner agencies and the various flood committees to update the EGFMS, verify the renewed action list and identify new priority actions for the region.

Introduction

Victoria's Regional Floodplain Management Strategies are approaching five years of implementation. This implementation report for East Gippsland (this report) has been prepared to review progress and update regional priority actions. This review has provided all agencies the opportunity to formally discuss and revise the priority actions, while at the same time meeting the CMAs' reporting obligations set out in Part 6 (22) of the Water Act 1989 Statement of Obligations for Catchment Management Authorities.

The development of this report has been led by East Gippsland Catchment Management Authority (EGCMA). The Implementation Committee has provided contribution through progressing and updating actions, holding discussions; as well as reviewing and endorsing the draft report. The Department of Environment, Energy and Climate Action (DEECA) seeks to periodically publish an Implementation Snapshot to celebrate successes and capture the status of Victorian Floodplain Management Strategy actions. This successfully showcases Victoria's achievements in floodplain management and allows us to be accountable to our commitments. The intent of this report is to produce a similar 'snapshot' style document that includes a review the regional implementation plan for East Gippsland.

Background

The EGCMA has worked closely with local government, the Victorian SES and other organisations that make up the Strategy Implementation Committee to develop the East Gippsland Floodplain Management Strategy (EGFMS), this document refers to Floodplain Management in East Gippsland between 2016-2023.

The four objectives of the EGFMS are:

- To build a flood resilient community
- To reduce existing flood risks
- To avoid future flood risks
- To manage residual flood risks

EGCMA is responsible for the oversight of statutory planning issues on floodplains, including drainage and planning permits for buildings across East Gippsland. The EGCMA has a formal agreement with West Gippsland CMA to support on matters relating to floodplain management and drainage.

Flood Records for some major rivers in East Gippsland extend back to the late 1800's and indicate that flooding is a relatively regular occurrence in the region. It is not unusual for East Gippsland catchments to experience multiple floods within a single year. As such, East Gippsland communities are aware of potential impacts, having already implemented actions to minimise both risk and damage to their homes and businesses. With the potential to disrupt essential services such as transport, water supply, sewerage, electricity, and communications, flooding in East Gippsland can and has isolated the east of the state on several occasions.

The climate in East Gippsland can be unpredictable, with variations of drought, flood and fire occurring throughout recent years. These events differ in severity and are often hard to predict, impacting preparedness and resilience. During the timeframe of the 2016-2023 EGFMS the catastrophic 2019-2020 Black Summer Bushfires occurred on the tail end of a severe drought, which in turn was proceeded by significant floods throughout 2021-22 in some Eastern Catchments.

A Region in Transition 2016-2021

2016		Significant Flooding in the Tambo, Nicholson, Mitchell, Wentworth, Brodribb and Buchan Rivers	<ul style="list-style-type: none"> • Water for Victoria • Our Catchments Our Communities • Environmental Contribution Tranche 4 • Victorian Auditor General's Report (VAGO) - Ramsar Wetlands • Victorian Floodplain Management Strategy
2017		East Gippsland Floodplain Management Strategy	<ul style="list-style-type: none"> • Victoria's Climate Change Adaption Plan • Agriculture Victoria Strategy • Protecting Victoria's Environment Biodiversity 2037
2018		National Landcare Program - Regional Landcare Partnership (over 5 years)	<ul style="list-style-type: none"> • Rural Drainage Strategy • Climate Change Act • Marine and Coastal Act • Gunaikurnai Victorian Government Joint Management Plan
2019		Black Summer bushfires	<ul style="list-style-type: none"> • Phase out of native forest harvesting by 2030 • Water and Catchment Legislation Amendment Act • Australia's Strategy for Nature 2019–2030 • Gippsland Integrated Water Management Strategic Directions Statement • East Gippsland Drought Employment Program
2020		COVID-19 Pandemic	<ul style="list-style-type: none"> • Environmental Contribution Tranche 5 (four years) • Long-term Water Resource Assessment for Southern Victoria (LTWRA) • Marine and Coastal Policy • Central and Gippsland Sustainable Water Strategy (under development)

Figure 1: East Gippsland a Region in Transition, Regional Catchment Strategy, 2022

The impacts of the drought, bushfires and Covid-19 restrictions significantly delayed and impacted on the delivery of certain actions within the strategy particularly those requiring community consultation as these communities were actively recovering from bushfire impacts throughout this period and this also overlapped with limitations on social gatherings caused by the Covid-19 pandemic. Recruitment and empty roles also caused some disruption throughout this period. Despite the numerous challenges faced between the strategy timelines the Implementation Committee has been successful in delivering many of the flood actions.

Strategy Implementation by the EGFMS Implementation Committee

EGCMA coordinate the EGFMS Implementation Committee, who meet on an as-needed basis, minimum of 6-monthly to discuss project progress. The EGCMA coordinate with partners individually on actions as required throughout the year to ensure project progress.

The committee members include:

- State Emergency Services (SES)
- East Gippsland Shire Council (EGSC)
- Wellington Shire Council (WSC)
- Parks Victoria (PV)
- Gippsland Ports (GP)

- Agriculture Victoria (Ag Vic)
- West Gippsland CMA (WGCMA)
- Victoria Police (Vic Pol)
- East Gippsland Water (EGW)
- Regional Roads Victoria (RRV)

The collaboration is ongoing particularly between EGCMA, WGCMA, SES and EGSC. The committee has focussed on developing and updating flood class levels and Local Flood Guides. Both projects have included extensive community input and consultation. The successful continuation of the EGFMS Implementation Committee has allowed agencies to work together to discuss, connect and achieve delivery on actions relating to flood risk across the region.

Achievements to date

There have been several unpredictable events throughout the 2016-2023 EGFMS implementation period. Despite these obstacles many significant achievements have been delivered for the East Gippsland region. Including:

- Local Flood Guides containing new modelling information drafted for eight key localities.
- Flood modelling for eight key localities, including: Mitchell River, Snowy River, Swifts Creek, Buchan, Bemm River and Cann River, Genoa and Dargo
- Extensive community engagement to discuss flood modelling throughout 2021-2023
- Additional flood modelling was completed for the Genoa and Lindenow localities
- Interagency collaboration, including the Bureau of Meteorology touring the catchments to discuss catchment hydrology, current flood warning systems, gauging and potential improvements.
- Installation of over 14 flood warning signs across low lying roads
- Installation of new river height and weather gauges at priority places

Figures 1 – 3 below are examples of some the achievements throughout the term of the EGFMS.



Figure 2: Bemm River Flood signage along Sydenham Inlet Road



Figure 3: Agency staff in the Far East discussing flood risk to communities



Figure 4: Bemm River Gauge boards installed at Old Coast Road

Regional Works Plan and Implementation Action Progress

Many actions have been completed and moved into business as usual over the course of the strategy implementation. Due to the impacts of bushfire and covid during the middle of implementation, several actions are within the 'in progress' category and on track for completion before the end of 2024.

The table below (Table 1: EGFMS Action Progress) indicates the progress against actions from the EGFMS and indicates the Implementation Committees actions going forward. The future actions will be recommended by the Implementation Committee and endorsed by the newly formed All Hazards Working Group chaired by the State Emergency Services (formed in March 2023). New priorities will be reviewed by a consultant and series of workshops throughout 2023/24 to feed into the next Floodplain Management Strategy.

Table 1: East Gippsland Action Progress

Region-wide			
Action no.	Action	Progress	Comments
R1	Develop quick look flood interpretation tools that can be used in areas with sparse data to support VICSES.	Completed	Flood intel cards were developed for SES use (included in the MEMP) which collate the new information from recently completed flood studies. Floodzoom was also updated with this data.
R2	2a. Obtain funding for a position to support delivery of the flood resilience activities of this strategy.	Completed	A consultant was engaged to assist in the updating of key public facing documents including Local Flood Guides and to update the Municipal Emergency Plan.
	2b. In consultation with EMV, review emergency management and coordination arrangements with the aim of achieving an all-hazards all agency approach to incident planning at community level.	Completed	The newly formed East Gippsland All-Hazards working group lead by the SES has been created and will be the group to review key documentation of a rolling annual basis. This group contains members from over 10 different emergency management agencies, the purpose of this group is to: Provide a municipal level forum to build and sustain organisational partnerships, generate a common understanding and shared purpose regarding an all-hazard approach to incident/emergency planning and management and ensure that the plans of individual agencies are linked to and complement the EGSC MEMPC and each other.
	3) Develop and implement a program for producing and maintaining currency of Local flood guides (LFGs) and Local Incident Management Plans (LIMPs) for priority locations; and,		Ten LFGs have been updated with new flood modelling information (2020 – 2023) but not yet released (pending DEECA/BoM endorsement/approval of new flood levels) for East Gippsland. Eight localities have had new flood studies completed to provide useful flood information.

	4) Local Government in partnership with VICSES and CFA to support the development of household response plans for floods (and other emergencies).		The EGSC has created Personal Plan Documents for the public to prepare for emergencies, this information is distributed on USBs and handed out at events.
			In line with the All-hazards approach - LIMPs include fire and flood risk, these have been created for many localities and are displayed at prominent places throughout the communities.
R3	Through the Municipal Emergency Management Plan (MEMP), investigate mechanisms to improve the reliability and coverage of telecommunications during flood events to ensure level of service is acceptable for emergency response.	Completed	EGSC have installed Satellite telemetry against Natural Disaster (STAND) systems at 45 localities across East Gippsland (including backup generator) to improve communication during emergency events.
R4	Through the MEMP, and in conjunction with road managers: a. undertake a regional road network link study to identify roads at risk from floods and priority structural mitigation measures; and,	Completed	Relevant agencies have collated their local knowledge from previous events and identified 16 locations in which flood water extends over public roads in East Gippsland. 16 sets of floodwater warning signs including flashing lights have been installed (8 on roads managed by VicRoads and 8 on roads managed by EGSC).
	b. review current processes for managing the safety of road users during flood events and the ability to move out of flood prone areas		Agencies create a united front and share messaging from the response agency (SES) during flood events.

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R5	In association with EGCMA, routinely identify suitable updated flood information and ensure relevant Planning Schemes are amended to account for the most recent data.	In progress	EGSC has commenced a project to implement coastal hazard and risk analysis recommendations in the East Gippsland Planning Scheme. The aim of the project is to update flood related planning controls in the planning scheme to identify properties at risk from future flood events and sea level rise.
R6	Review flood class levels at all East Gippsland river gauge locations, advise BoM of new levels, include in MFEPs and ensure extensive community consultation.	In progress	Flood studies have been completed for 8 East Gippsland localities including: Mitchell River, Snowy River, Swifts Creek, Buchan, Bemm River and Cann River, Genoa and Dargo.
			Endorsement from the State Floodplain Sub-Committee is being sought for the recommended changes to flood warning heights for these sites. Community consultation and feedback is also being sought in parallel.
			The Bureau of Meteorology is investigating abilities to meet the proposed service level recommendations put forward to upgrade or introduce flood warning systems to these townships.
R8	Develop a process and template to incorporate the outcomes of future flood studies into Flood Intel Products (currently Flood Intel Cards)	Completed	Flood intelligence cards have been created to guide agencies during flood events to be used in conjunction with the newly updated Local Flood Guide. Future of the MFEP (which currently contains the Flood Intel Cards) to be determined by the All Hazards Working Group.
R9	In conjunction with DELWP, liaise with BoM to improve flood forecasting and warning services for East Gippsland, with a view to:	In progress	

	<p>a. improving the flood forecast lead times for existing forecast locations where achievable to match requirements identified by EM agencies;</p>		<p>a) Flood intelligence cards have been created to guide agencies during flood events to be used in conjunction with the newly updated Local Flood Guides which contain information on the impacts predicted at various river heights.</p>
	<p>b. improving real-time access to data from rain and river gauges; and</p>		<p>b) DEECA and BoM have been approached for increasing intervals, graph shows polling hourly – more frequent data can be found for some gauges as raw data from the BoM website</p>
	<p>c. enhancing services in other priority locations to better reflect risks and community requirements.</p>		<p>c) Flood class level review project awaiting endorsement and implementation, proposed flood warning systems for Dargo, Swifts creek and Bemm River are underway.</p>
R10	<p>Developing a method to capture and store information gathered during flood events and implement a pilot study of that method in the Gippsland Region as a proof-of-concept trial.</p>	<p>Completed</p>	<p>A pilot study was not required as the process is already being used and revised by agencies during and post flood event.</p> <p>Currently agencies debrief after flood events to review response and record and discuss lessons learnt. These findings are implemented and recorded in the live reference documents such as Local Flood Guides and Flood Intel cards.</p>
R11	<p>In conjunction with DEWLP and EGSC, approach EMV with a proposal to adopt a flood classification scheme similar to the six-step Fire Danger Rating Scheme.</p>	<p>No longer a priority</p>	<p>Recommendation was discussed with Bureau of Meteorology and State SES but was not adopted.</p>

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R12	In conjunction with CMAs investigate opportunities for accounting for climate change (rainfall, temperature and sea level rise) into flood modelling and mapping.	In progress	Funding has been applied for through the Disaster Ready Fund to support this action, this is also addressed in the EGSC Climate Adaptation Strategy.
R13	Council in partnership with VICSES, to support businesses in developing continuity plans for floods (and other emergencies).	In progress	EGSC Economic Development team runs annual workshops for local business owners focussed on resilience through addressing business continuity for East Gippsland businesses including during emergency events – flood, fire, etc.
R14	With partner agencies explore the most appropriate governance arrangements for the management of flood mitigation infrastructure.	In progress	Flood infrastructure across East Gippsland, including rural flood drainage assets and the appropriate governance arrangements for these are managed on a case-by-case basis. Generally applying the ‘beneficiary pays’ principle on historical assets. Landholders are referred to the Dryland Rural Drainage Resource Kit by the appropriate agency which provides guidance on these issues.
R15	Investigate the resilience of sewer and water supply systems and implement necessary mitigation measures.	In progress	Ongoing discussions with partner agencies. Local water authorities have procedures in place to mitigate risks to human safety and the environment.

Gippsland Lakes			
Action no.	Action	Progress	

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GL1	Undertake a Planning Scheme Amendment in order to incorporate the flood levels and related extents that were declared under the Water Act in 2005.	In progress	EGSC has commenced a project to implement coastal hazard and risk analysis recommendations in the East Gippsland Planning Scheme. The aim of the project is to update flood related planning controls in the planning scheme to identify properties at risk from future flood events and sea level rise.
GL2	2a. Develop the Lakes Entrance Adaptation and Growth Strategy, with support from EGCMA.	Not yet started	EGSC has commenced a project to implement coastal hazard and risk analysis recommendations in the East Gippsland Planning Scheme. The aim of the project is to update flood related planning controls in the planning scheme to identify properties at risk from future flood events and sea level rise.
	2b. Commence Implementation of the Lakes Entrance Adaptation and Growth Strategy, with support from EGCMA.		
	2c. Apply the learnings from the Lakes Entrance Adaptation and Growth Strategy in order to develop a framework for adaptation to sea level rise.		
GL3	3a. Investigate options to maintain access to the Raymond Island ferry and / or water taxi during larger flood events.	Completed	Agencies have a developed plan to address issues with the Raymond Island ferry and / or water taxi during larger flood events including an Evacuation Plan for Raymond Island. The Ferry and the access ramps, car parks have been upgraded in recent years to assist the infrastructure in times of flood.
	3b. Develop a plan to accommodate vehicles evacuated from Raymond Island during floods.	Completed	

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GL4	In conjunction with DELWP and WGCMA, approach BoM to improve the flood forecast services for the Lakes communities'	In progress	EGSC has commenced a project to implement coastal hazard and risk analysis recommendations in the East Gippsland Planning Scheme. The aim of the project is to update flood related planning controls in the planning scheme to identify properties at risk from future flood events and sea level rise.
GL5	In conjunction with EGSC and DELWP, develop a strategy to reduce risk to private and commercial boats during flood events.	In progress	A joined agreement is being developed between EGSC and Gippsland Ports to address the risk to private and commercial boats during significant flood events.
GL6	Support EGSC to investigate and implement strategic mitigation and adaptation actions.	In progress	All agencies available to provide comment and feedback into agency strategies and policies relating to flood risk and response through the All Hazards Working Group and the implementation committee where appropriate.
GL7	Implement activities to maintain and build community awareness within the Lakes management units (e.g. work with communities to develop and maintain currency of LFGs).	In progress	EGSC has commenced a project to implement coastal hazard and risk analysis recommendations in the East Gippsland Planning Scheme. The aim of the project is to update flood related planning controls in the planning scheme to identify properties at risk from future flood events and sea level rise.
GL8	Extract flood intelligence from Gippsland Lakes Flood Level Modelling Project, update the Municipal Flood Emergency Plans (MFEPs).	Completed	Future of the MFEP (which currently contains the Flood Intel Cards) to be determined by the All Hazards Working Group.

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GL9	In conjunction with other infrastructure providers, investigate the condition of seawalls in priority locations and implement appropriate actions.	Completed	Investigation into the condition of seawalls in priority locations and appropriate action implementation addressed in EGSC Coastal strategy.
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Uplands			
Action no.	Action	Progress	
U1	Develop quick look indicative flood interpretation tools for VICSES.	Completed	Quick look tools have been developed in the form of flood intel cards for SES use, collection of new information from flood studies in LFGs and the updating of Floodzoom.
U2	Extract flood intelligence and update MFEPs	In progress	Flood intelligence cards have been created to guide agencies during flood events to be used in conjunction with the newly updated Local Flood Guide. Future of the MFEP (which currently contains the Flood Intel Cards) to be determined by the All Hazards Working Group.
U3	Prepare LFGs to build and maintain community resilience	In progress	Community consultation occurring for the updated Local Flood Guides in conjunction with the Flood Class Level reviews for key localities across East Gippsland.
U4	Investigate opportunities to improve data availability for Tambo Valley rain and river gauges.	Completed	Tambo Valley, including Brookeville has received new weather gauging. A flood warning system including introducing flood class levels is being designed for the Tambo River at Swifts Creek.

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U5	Using the rapid risk assessment hydraulic model, investigate the effects of in-stream and on-bank vegetation on flood behaviour through Swifts Creek.	Completed	The Tambo River at Swifts Creek had a flood study completed in 2020, the findings of which will be included in the revised Local Flood Guide.
U6	Investigate feasibility of minor structural works or other measures to reducing potential for over-floor flooding.	In progress	Where rapid modelling was conducted, a few houses were found in particularly low spots. The potential for minor levees etc. to reduce their risk and to reduce the burden on local SES for sandbagging etc.), is to be investigated once floor level surveys had been conducted.

Lowlands			
Action no.	Action	Progress	
L1	Support DELWP to conduct a flood study of the Mitchell River from Glenaladale to river mouth.	Completed	Mitchell Flood Study completed 2020, findings to be used in providing recommendations for the proposed flood class levels for these townships as well as updating the Lindenow, Woodglen, Hillside LFG and the Bairnsdale LFG.
L2	Continue to support DELWP in conducting the Snowy River Regional Flood Mapping project.	Completed	Snowy River Flood Study was completed in 2020, findings to be used in providing recommendations for the proposed flood class levels for these townships as well as updating the Orbost and Bete Belong LFGs.
L3	Conduct rapid flood risk assessment study for Boggy Creek at Nowa Nowa, including consideration of a range of water levels in Lake Tyers.	New priority	The need for this modelling is being reviewed by the All Hazards Working Group.

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L4	Prepare LFGs to build and maintain community resilience in priority locations	In progress	Community consultation occurring for the updated Local Flood Guides in conjunction with the Flood Class Level reviews for key localities across East Gippsland.
L5	Extract flood intelligence and update MFEPs:	Completed	Only Boggy creek catchment flood study remains to be completed, scheduled for 2023-24 if deemed necessary by the All Hazards Working Group.
	- Snowy River from Jarrahmond to Marlo		
	- Mitchell River from Glenaladale to the mouth		
	- Boggy Creek Catchment		
L6	Investigate opportunities to improve data availability at priority gauges, including Bemm River gauges at the highway and the pumphouse.	In progress and Complete	The Bureau of Meteorology is investigating the best methods to forecast flooding at Bemm river township including investigating the relationship between the two gauges.
	Reinstate the gauge board on the Coast Road Bridge.		The gauge board has been reinstated.
L7	Develop quick look indicative flood interpretation tools for VICSES.	Completed	Quick look tools have been developed in the form of flood intel cards for SES use, collection of new information from flood studies in LFGs and the updating of Floodzoom.
L8	Review the protocol for emergency estuary / river mouth opening.	In progress	Protocol has been reviewed, finalised protocol is on track for completion in 2023.
L9	Undertake a Planning Scheme amendment to incorporate the outputs of the Snowy and Mitchell River flood studies.	In progress	EGSC has commenced a project to implement coastal hazard and risk analysis recommendations in the East Gippsland Planning Scheme. The aim of the project is to update flood related planning controls in the planning scheme to identify properties at risk from future flood events and sea level rise.