

***South Gippsland Basin
Regional Blue-Green Algae
Coordination Plan
2018/19***



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South Gippsland Basin BGA Regional Coordination Plan

Distribution List

- Bass Coast Shire Council (BCSC)
- Department of Economic Development, Jobs, Transport and Resources (DEDJTR)
- Department of Environment, Water, Land and Planning (DELWP)
- Department of Health and Human Services (DHHS)
- Environment Protection Authority (EPA)
- Gippsland Water (GW)
- Parks Victoria (PV)
- SES East Region
- Southern Rural Water (SRW)
- South Gippsland Shire Council (SGSC)
- South Gippsland Water (SGW)
- Victoria Police
- Wellington Shire Council WSC)
- West Gippsland Catchment Management Authority (WGCMA)
- Westernport Water (WW)

List of Acronyms

AIIMS	Australasian Inter-Service Incident Management System
BGA	Blue-Green Algae
EMMV	Emergency Management Manual Victoria
LWM	Local Water Manager
NATA	National Association of Testing Authorities
NHMRC	National Health and Medical Research Council
RC	Regional Coordinator
RCP	Regional Coordination Plan
SWDA	Safe Water Drinking Act (VIC) 2003

1.0 INTRODUCTION

1.1 Objective

The objective of the South Gippsland Basin Regional Blue Green Algae Coordination Plan (RCP) is to outline a coordinated approach to blue green algae (BGA) management across the South Gippsland drainage basin in order to protect public health and minimise social, environmental and economic impacts.

The RCP details the methodology of preparedness for and management of a regional bloom including the roles and responsibilities of the Regional Coordinator (South Gippsland Water), Local Water Managers and other agencies to ensure consistent and effective management action before, during and after a BGA bloom.

1.2 Links with Other Documents and Strategies

This RCP adopts the framework of the Emergency Management Manual Victoria ([EMMV](#)) concepts of preparedness, response and recovery. This approach should be adopted by [BGA response plans](#) for consistency and because it provides a robust framework for response to an event.

Pursuant to the *Emergency Management Act 1986* and the [EMMV](#), the management of incidents should be based on three key areas:

1. Prevention and Preparedness
2. Response
3. Recovery

The Plan also allows for the structure of the [Regional Response Group](#) to be compatible with the Australasian Inter-service Incident Management System ([AIIMS](#)). The AIIMS has been adopted by all major emergency management agencies in Victoria.

This plan links with the [DEPI Blue-Green Algae Circular](#) (Victoria's BGA response framework); the risk management plans required for water storage managers ([Safe Drinking Water Act 2003](#)), and the relevant Regional Response Plan.

2.0 DEFINITIONS

Blue Green Algae Bloom: An increase in algal numbers to such an extent as to: discolour the water, impart taste, odours, toxins and/or other compounds to the water, to adversely affect the other biotic components of the aquatic ecosystem i.e. fish, birds, amphibians, etc.) or generally render the water unsuitable for its intended use (i.e. drinking, irrigation, recreation, stock watering, ecosystem maintenance etc.). (Queensland Harmful Algal Bloom Response Plan Version 1 Dec 2002)

Drinking Water - Water that is intended for human consumption or for purposes connected with human consumption, such as the preparation of food or the making of ice for consumption or for the preservation of unpackaged food, whether or not the water is used for other purposes (*Safe Drinking Water Act 2003*).

Incident Management Response (IMR) Levels - IMR Levels are established once a blue-green algae bloom is detected. Actions arising from these various levels are a response to the evaluation of the risk of the bloom to users. Refer to [Appendix 1](#) for details.

Local Bloom – A BGA bloom confined to a single water body.

Local Water Manager (LWM) – Organisation with responsibility for monitoring and managing a local bloom. Refer to [Appendix 2](#) for details.

Primary Contact Recreation - Includes all water-related activities where immersion in water is the intended action or probable outcome of the activity (e.g. swimming, water skiing, surfing or white water canoeing).

Recreational Water Bodies - Any areas where a significant number of people use the water for recreation (NHMRC 2008). The recreational trigger levels defined in the DELWP Blue-Green Algae Circular are based on primary contact recreation.

Regional Bloom – An outbreak of BGA which affects multiple interconnected water bodies and BGA is present at the public health alert levels as defined in the Department of Transport, Planning and Local Infrastructure (DTPLI) Blue-Green Algae Circular.

Regional Coordinator - Oversees the management of local blooms, nominates Local Water Managers and co-ordinates preparations for and the management of regional blooms.

3.0 SCOPE

South Gippsland Water (SGW) is the Regional Co-ordinator for management of BGA outbreaks in the South Gippsland drainage basin 27 which includes the water systems in [Appendix 2](#). See boundaries in Figure 1.

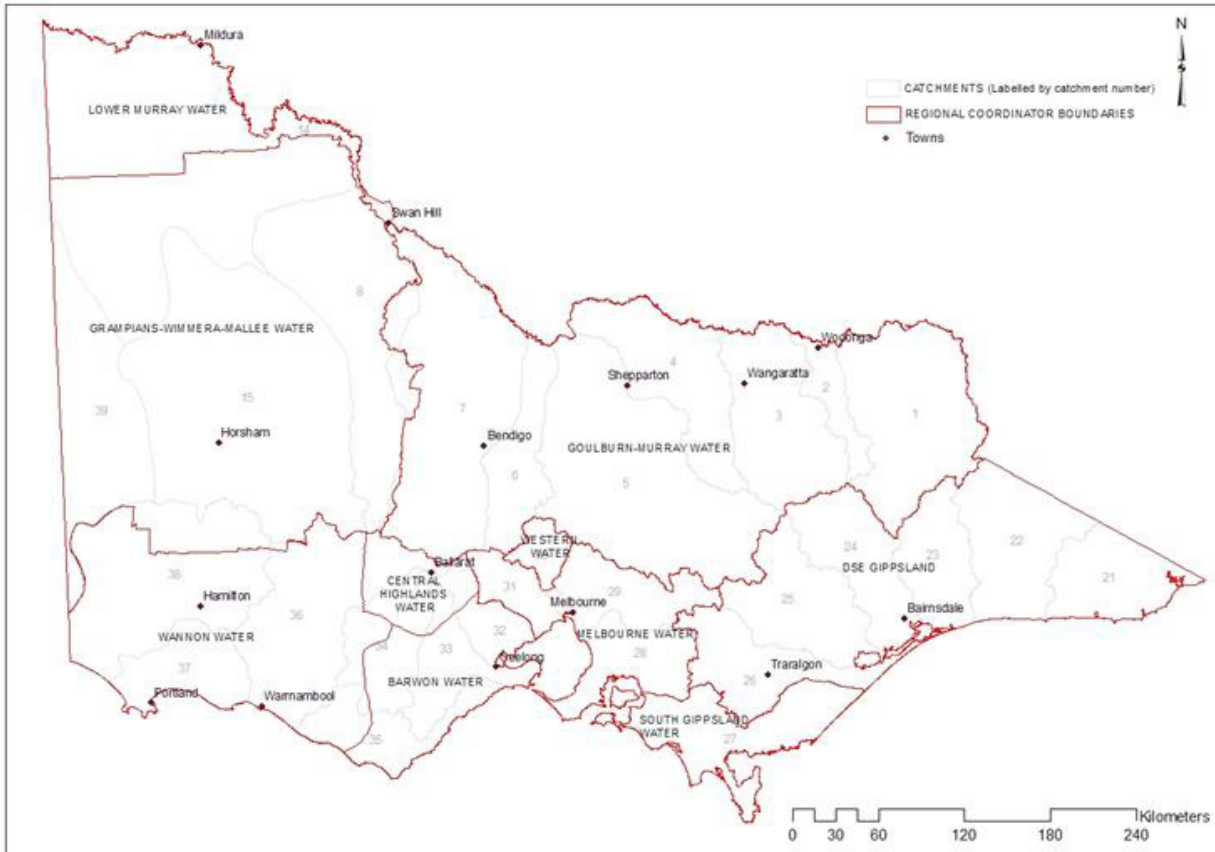


Figure 1 - Regional Co-ordinator Boundaries

As Regional Co-ordinator, South Gippsland Water is required to facilitate regional co-ordination arrangements for monitoring and management of BGA outbreaks through this Regional Co-ordination Plan.

Management of BGA outbreaks is a two tiered approach. LWM's will be responsible for monitoring and managing local blooms, while regional blooms affecting more than one LWM is co-ordinated by SGW as defined in [Section 4](#).

LWM's will manage local blooms under their own emergency management plans, providing weekly reports to South Gippsland Water as the Regional Coordinator.

If a LWM has not been identified for a water body then SGW will assume responsibility until such time as an appropriate LWM is nominated. SGW will not be the LWM for these water bodies.

4.0 ROLES AND RESPONSIBILITIES

4.1 Summary of Roles and Responsibilities

The roles and responsibilities for BGA coordination are summarised in Table 1. The details in this table include information on a preferred structure based on the Emergency Management Manual of Victoria and Australasian Inter-Service Incident Management System (AIIMS).

	State wide Coordinator (Control Agency) (DELWP)	Regional Coordinator (RC) SGW	Local Water Manager (LWM) Local Agencies	Support Agency WGCMA
Prevention	Identify high risk water bodies/ reaches with Regional Coordinators	Liaise with CMAs and LWMs regarding Water Quality Plans to reduce risk of blooms	Review BGA risk for water body/reach and determine and implement any preventative measures	CMAs develop Regional River Health Strategy
	Maintain database of history of BGA blooms to monitor trends	RCs liaise with WCMA and others to encourage river and catchment improvement works	Prepare, update annually Risk Management Plans and Incident Response Plans	Tourism Victoria to assist with preparation of the tourism industry for BGA Blooms
Preparedness	Annual update DELWP BGA Circular	Prepare, update annually and distribute Regional Coordination Plan (RCP)	Monitor and sample for BGA in accordance with Risk Management Plan	DHHS provides input to BGA Circular
	Ensure RCs have prepared and updated Regional Coordination Plans	Convene pre-season co-ordination Meeting and undertake exercise to test RCPs and Incident/Risk Management plans	Participate in pre-season Regional Co-ordination Meeting and undertake exercise to test plans	
	Assist RCs in allocation of LWMs if required			
	Monthly summary reports on significant blooms (on DELWP website)	Be informed of local blooms	Report to RC, DELWP and DHHS local blooms (where required)	
Response	Liaise with DHHS where required	Declare a bloom regional	Manage local blooms in accordance with Incident Response Plan including monitoring, signage, media releases	DHHS provides advice on public health and seafood safety with respect to BGA
	Provide advice to appropriate Minister where required	Manage regional blooms in accordance with RCP	Notify the RC if a local bloom has or becomes a Regional Bloom	DHHS is control Agency for drinking water contamination in EMMV
		Convene response group	Participate in regional bloom Response Group as required	Emergency Services if bloom becomes an emergency as defined in EMMV
		Appoint Incident Controller		
		Develop - Communication Plan Operations Plan Monitoring plan		
Report to DELWP and DHHS	Tourism Victoria provides contacts in the relevant Regional Tourism Response and Recovery Group			
Ensure Debrief Report is prepared for blooms above the public health alert level	Prepare Debrief report for regional blooms	Prepare Debrief Report for blooms above the public health alert level	DHHS assessment of social and environmental impacts in accordance with EMMV	
Annual BGA Report for season				
Recovery				

Table 1: Summary of BGA Coordination Roles and Responsibilities

4.2 Roles and Responsibilities in the South Gippsland Basin RCP

4.2.1 Department of Environment, Land, Water and Planning (DELWP)

DELWP is the Control agency for BGA management. DELWP collects data on BGA to monitor trends throughout the State which helps to manage BGA blooms. During an algal bloom, DELWP will co-ordinate the management activities so that all relevant stakeholders can perform their respective roles and responsibilities at the regional level.

Key Area	Roles
Prevention (incorporating Planning and Preparedness actions)	<p>Supports relevant research and development.</p> <p>Identifies sources of BGA knowledge and expertise.</p> <p>Identifies high risk water bodies/reaches based on water sampling data collected, in consultation with Regional Coordinators.</p> <p>Maintains a database of BGA blooms to monitor trends.</p> <p>Updates the DELWP BGA Circular annually.</p> <p>Convenes the BGA Working Group.</p> <p>Allocates Regional Coordinators.</p> <p>Ensures Regional Coordinators have prepared and updated Regional Coordination Plans.</p> <p>Assists in training of Regional Coordinators and Local Water Managers to enact the Regional Coordination Plans.</p> <p>Liases with national, interstate and other agencies to maintain and disseminate information through the BGA Working Group and provide best practice in managing BGA.</p> <p>Assists Regional Coordinators in allocation of Local Water Managers if required.</p> <p>Facilitates a mediation process with respective parties and relevant government agency/body in the event of a dispute over roles and responsibilities of Regional Coordinators and Local Water Managers.</p>
Response	<p>In a regional BGA bloom, where more than a single water body is impacted, DELWP will set up Incident Control centres and Emergency Management Teams to manage under the AIIMS structure which will be at the appropriate scale.</p> <p>Produces monthly summary reports on significant BGA blooms (DELWP website).</p> <p>Liases with Department of Health and Human Services (DHHS).</p> <p>Obtains technical advice and information/advice for Local Water Managers.</p> <p>Advises the relevant Minister, where required.</p>
Recovery	<p>Attends debrief meetings and ensures that a debrief report is prepared for regional BGA blooms.</p> <p>Prepares an Annual Report on BGA blooms for the season.</p>

4.2.2 Department of Health and Human Services (DHHS)

DHHS provides advice about the potential public health impacts of BGA blooms and administers the [Victorian Safe Drinking Water Act 2003 \(SDWA\)](#).

Key Area	Roles
Prevention (incorporating Planning and Preparedness actions)	<p>Assists DELWP to update the BGA Circular each year.</p> <p>Liases with national, interstate government departments and other agencies to maintain, disseminate and manage information on BGA.</p>
Response	<p>Participates as a member of Response Groups as required.</p> <p>Provides advice on public health issues relating to BGA.</p> <p>Provides advice on seafood safety with respect to BGA, to Water Managers and PrimeSafe (regulators of commercial seafood safety).</p> <p>Is the Control Agency for retail food contamination and drinking water contamination.</p> <p>Provides advice to the Minister for Health, where required.</p>
Recovery	<p>Assists with the assessment of social and environmental impacts in accordance with the Emergency Management Manual Victoria.</p>

4.2.3 Regional Coordinator (RC)

The Regional Coordinator is responsible for coordinating the management of local BGA blooms, as well as coordinating planning and preparedness for managing regional BGA blooms.

Key Area	Roles
<p>Prevention (incorporating Planning and preparedness actions)</p>	<p>Liaises with Catchment Management Authorities, Water Corporations, Local Government and others to encourage river and catchment improvement works are carried out in areas that may reduce risks of blooms.</p> <p>Nominates Local Water Managers</p> <p>Annually prepares, updates and distributes the BGA Regional Coordination Plan, before the start of summer.</p> <p>Convenes the pre-season coordination meeting.</p> <p>Checks that local water managers have prepared and updated Risk Management Plans.</p> <p>Ensures sufficient training has been undertaken by Local Water Managers to enact the Coordination Plans.</p> <p>Identifies sources of BGA knowledge and expertise.</p>
<p>Response</p>	<p>Is informed of local blooms.</p> <p>Declares when a BGA bloom is regional.</p> <p>Convenes and chairs the Response Group meetings during a regional BGA bloom.</p> <p>Appoints the Incident Controller during a regional bloom.</p> <p>Coordinates the response to regional blooms through the Response Group including monitoring, management, signage and media releases.</p> <p>Reports to DELWP and DHHS on the management of regional BGA blooms.</p> <p>Documents and records all actions taken.</p> <p>Provides information to tourism bodies on regional BGA blooms.</p> <p>Coordinates ongoing monitoring of regional BGA blooms.</p>
<p>Recovery</p>	<p>Conducts a debrief meeting and prepares a debrief report on regional BGA blooms. This report may include likely cause of bloom (if known), management actions taken, and any improvements that can be made with future responses.</p>

4.2.4 Local Water Managers (LWM)

The LWM's role is to minimise impacts of the bloom including public health risks.

A LWM in the context of this plan relates only to managing BGA blooms in a section of a waterway or a water body. It does not imply any other waterway/water body management responsibilities, although many Local Water Managers in the BGA context may have other roles in water body management.

A LWM is generally the agency with on ground management responsibilities for a particular water body. In areas where no management arrangement exists, the local water manager is usually the agency with responsibility for public health in that area.

Key Area	Roles
Prevention (incorporating Planning and preparedness actions)	<p>Develops and updates the Risk Management Plan annually to guide monitoring and response activities.</p> <p>Reviews the BGA risk for the water body, determines and implements any risk mitigation measures (BGA Risk Management Plan).</p> <p>Monitors and takes samples for BGA.</p> <p>Organises local water management staff training.</p> <p>Participates in the Regional Coordinators pre-season meeting.</p> <p>Ensures that sufficient preparedness training has been undertaken to enact the Regional Coordination Plans.</p>
Response	<p>Informs the regional coordinator, DELWP and DHHS of local BGA blooms.</p> <p>Manages local BGA blooms in accordance with BGA Risk Management Plan including monitoring, signage and media releases.</p> <p>Documents and record all actions taken.</p> <p>Notifies the Regional Coordinator if a local BGA bloom could become or has become a regional BGA bloom.</p> <p>Notifies Regional Coordinator if a regional bloom is identified during routine monitoring.</p> <p>Participates in the Response Group during regional BGA bloom if required.</p> <p>Provides information to tourism bodies on local BGA blooms, if required.</p>
Recovery	<p>Provides ongoing monitoring.</p> <p>Considers preparing a debrief report for internal purposes for BGA blooms that exceed the public health limits outlined in Section 6.3.1 and 6.3.2 for an extended period. This report may include likely cause of BGA bloom (if known), management actions taken, and any improvements that can be made with future responses.</p> <p>Provides feedback to DELWP relating to the BGA Circular.</p>

4.2.5 Regional Response Groups (RRG)

RRG's are formed to manage regional blooms on a continuing basis on behalf of the Regional Coordinator. The Regional Coordinator is responsible for convening and chairing the Response Groups, which should include stakeholder agencies that have responsibilities or an interest in the area affected by a regional BGA bloom.

The Response Group may consist of the following personnel:

- Regional Coordinator (South Gippsland Water)
- Impacted Local Water Managers
- Catchment Management Authority
- Department of Environment, Land Water and Planning
- Department of Transport, Planning and Local Infrastructure
- Parks Victoria
- Department of Health and Human Services
- Environment Protection Authority
- Shire Councils
- Other affected stakeholders

A list of response group members for the South Gippsland Basin is provided in [Appendix 3](#) Response Group members

4.2.6 Other Agencies

A number of other agencies, work together to manage BGA blooms in water bodies. The key agencies are DELWP, EPA, the West Gippsland Catchment Management Authority, Emergency Services, Tourism Victoria and PrimeSafe if applicable.

Please see a complete list of agencies that may be involved in managing a BGA bloom in [Appendix 3b Response Group members-Regional Agencies](#)

Key Area	Roles
Prevention (incorporating Planning and preparedness actions)	<p>Catchment Management Authorities (CMAs) undertake water quality activities including testing and catchment improvement works through implementing their Regional River Health Strategies.</p> <p>Tourism Victoria has a role in preparing the tourism industry for the possibility of BGA blooms at key recreational sites.</p>
Response	<p>EPA, DELWP and CMAs may participate as members of Response Groups, as required.</p> <p>DELWP provides advice for BGA blooms in private storages such as farm dams.</p> <p>Emergency service providers can be involved if a BGA bloom becomes an emergency as defined in the EMMV.</p> <p>Tourism Victoria assists with identifying contacts in the relevant Regional Tourism Response and Recovery Group.</p> <p>PrimeSafe is responsible for the regulation of seafood safety</p>

The **EPA** is responsible for incident management of fish deaths under the [EPA Fish Death Response Procedure](#) (2007). Fish deaths are sometimes associated with algal blooms, either as a consequence of a bloom (due to depletion of oxygen) or due to a common causal factor (such as freshwater inputs after heavy rainfall).

Incident Controller - Based on the Australasian Inter-Service Incident Management System ([AIIMS](#)) and the [EMMV](#), the Incident Controller assumes overall responsibility for the management of the incident and is supported by three sections: Planning, Operations and Logistics, if required. The Regional Coordinator representative will fill the role of the Incident Controller, unless delegated with agreement of the Response Group. The supporting roles of Planning, Operations and Logistics may be serviced by varying members of the response group depending on the location of the regional bloom

Planning Officer (if required) - is responsible for Incident Action Planning, resource tracking and provision of incident information and situation reports

Public Information Officer (when required) – is responsible for the dissemination of timely, accurate and authorised incident information (internally and externally) and the management of media, spokespeople and media interviews, liaising across all involved agencies for consistency of messages.

Operation Officer (if required) - is responsible for implementation of the Incident Action Plan

Logistics Officer (if required) – is responsible for the provision of services in support of the incident

Control Agency - in accordance with the Emergency Management Manual Victoria ([EMMV](#)), the control agency is the agency nominated to control the response activities.

Support Agency - in accordance with the Emergency Management Manual Victoria ([EMMV](#)), a support agency provides services, personnel or material to support or assist in response activities.

5.0 MANAGEMENT OF WATER BODIES - TASKS

5.1 Review of Response Plans

5.1.1 Regional Coordination Plan

The Regional Coordination Plan (this plan) is to be reviewed annually to ensure:

- the Plan reflects the current state of knowledge in relation to BGA management
- the contact list for the LWMs and other agencies is up to date.
- the Plan is consistent with the latest [DELWP Blue-Green Algae Circular](#)

The Plan is to be distributed to those listed in the distribution list.

Local Water Managers should be familiar with the Regional Control Plans for managing regional BGA blooms in their area and be aware of the extent of their roles and responsibilities in the plan.

5.1.2 BGA Risk Management Plan

Local water managers should develop [BGA Risk Management Plans](#) for water bodies under their responsibility and monitor the water bodies for BGA accordingly, to ensure early detection and management of BGA blooms. BGA Risk Management Plans should link to the Regional Coordination Plan established by the regional coordinators. These plans should be reviewed and updated on an annual basis.

Where a water body is used to supply drinking water, BGA Risk Management Plans should interface with, or be included in the Risk Management Plan that has been developed to comply with the SDWA.

Local Water Managers should update their BGA Risk Management Plans annually and take into account any changes to organisations both within and outside of the water sector and linkages to state-wide and municipal emergency management planning strategies and developments. They should also consider the best way for their BGA Risk Management Plans to be linked to the EMMV and to municipal Emergency Management Plans and any other related planning instruments.

5.1.3 Pre-Season Meeting

A pre-season regional coordination meeting shall be organised by the Regional Coordinator with members of the Response Group and Local Water Managers.

Items to be discussed at this meeting include:

- DELWP BGA Circular;
- Overview of high risk water bodies and any risk reduction strategies;
- Local Water Manager Risk Management and Incident Response Plans;
- Regional Coordination Plan;
- Season preparation (i.e. training, resources)
- Exercise to test Regional Coordination Plan

5.1.4 Provision of updated Plans

The updated Regional Coordination Plan shall be provided to DELWP and the LWMs.

The updated Incident Response Plans shall be provided to the South Gippsland Water by the Local Water Managers.

5.2 Monitoring Water Bodies

Water bodies should be monitored in accordance with the BGA Risk Management Plan.

Monitoring results should be kept in a readily accessible format in case they are required for future investigations.

5.3 Response

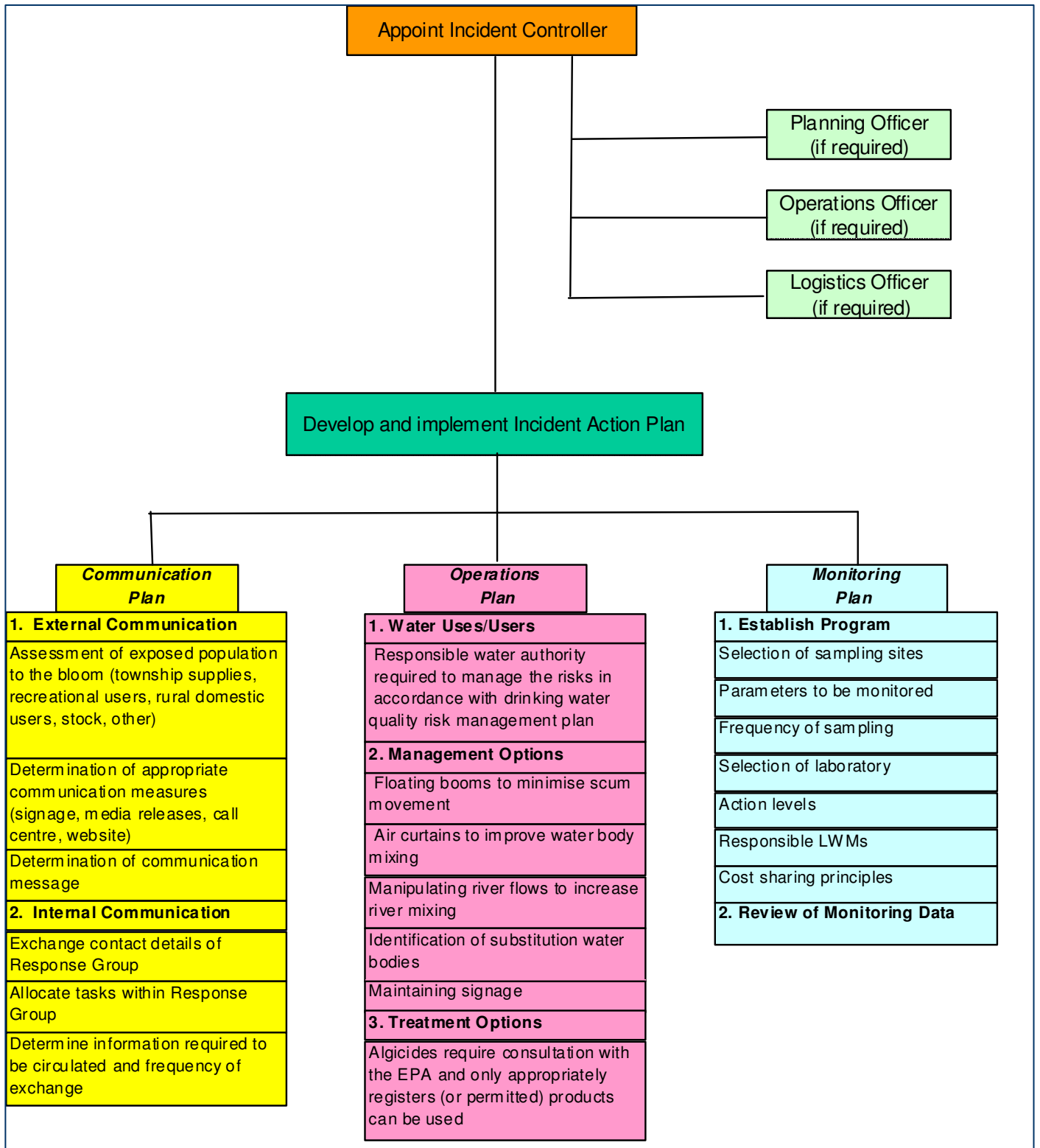
Once a Regional Bloom has been identified, the Response Group shall be convened and undertake the tasks shown in Figure 2.

5.4 Debriefing (Recovery)

At the conclusion of a regional blue-green algae bloom, the Response Group shall meet to evaluate the management of the bloom and the efficiency of the Plan.

The Debrief Report is to be provided to the South Gippsland Water as the Regional Coordinator and DELWP.

Figure 2: Summary of Response Group Responsibilities



6.0 REPORTING OF BLUE GREEN ALGAE

6.1 Notification to DELWP and Regional Coordinator

When sampling and testing has confirmed the existence of BGA at or in excess of a biovolume of 0.2mm³/L, LWM's are asked to advise the Regional Coordinator.

The Water Industry Portal (<https://www.floodzoom.vic.gov.au/FIP.Site/Identity/Login>) should be used for this notification. A login for this website can be obtained by contacting the DELWP Blue-Green Algae State Coordinator.

DELWP BGA State Coordinator Level 11, 8 Nicholson Street East Melbourne VIC 3002	bluegreen.algae@delwp.vic.gov.au	T: (03) 9637 9526
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Once logged into the website the details of the bloom can be recorded. The Regional Coordinator and the DELWP will be able to view the details of the bloom via this database.

If you are experiencing problems with the Water Industry Portal website please contact the DELWP State-wide Coordinator.

6.1.1 Local Blooms

When reporting local BGA blooms, Local Water Managers are requested to provide the following details to DELWP via the portal or a notification form:

- Species (if known);
- Biovolume;
- Name of water body; and
- Actions taken to date.

When updating existing blooms Local Water Managers are asked to enter BGA bloom updates as new results become available and when the BGA bloom has ceased.

When logging blooms also consider:

- Whether the bloom is likely to become a regional problem;
- If the bloom has caused a water supply to be interrupted, public warnings to be issued or water bodies to close; and
- Whether treatment is required.

6.1.2 Regional Blooms

When reporting regional blooms, Response Groups should provide advice, similar to a local bloom. Response Groups are asked to advise the [Regional Coordinator](#) and DELWP.

6.2 Biovolume versus Cell Counts

BGA are a diverse group of organisms, which range dramatically in size, shape and toxicity. Quantifying BGA in terms of cell numbers alone does not account for variability in the size between different species, and this can lead to inappropriate management actions, particularly in circumstances where there may be large numbers of a particular species with a very small

cell size. Measurement of biovolume is therefore used as a means of providing a more accurate description of cell density, as it is more closely related to toxin concentrations than total cell numbers.

Biovolume can either be directly measured by analytical laboratories, or alternatively the biovolume calculation tool can be used. DELWP has developed a biovolume calculator to estimate the biovolume of BGA species, based on the cell counts that are reported by analytical laboratories. Standard reference BGA cell volumes within the biovolume calculation tool are based upon BGA from Australian freshwaters, and are taken from the National Protocol for the Monitoring of Cyanobacteria and their Toxins in Surface Fresh Waters.

The biovolume calculator is available from the [Blue-green algae resources](#) page on the DELWP website. Alternatively you can obtain a copy by contacting the DELWP BGA State Coordinator

DELWP BGA State Coordinator Level 11, 8 Nicholson Street East Melbourne VIC 3002	bluegreen.algae@delwp.vic.gov.au	T: (03) 9637 9526
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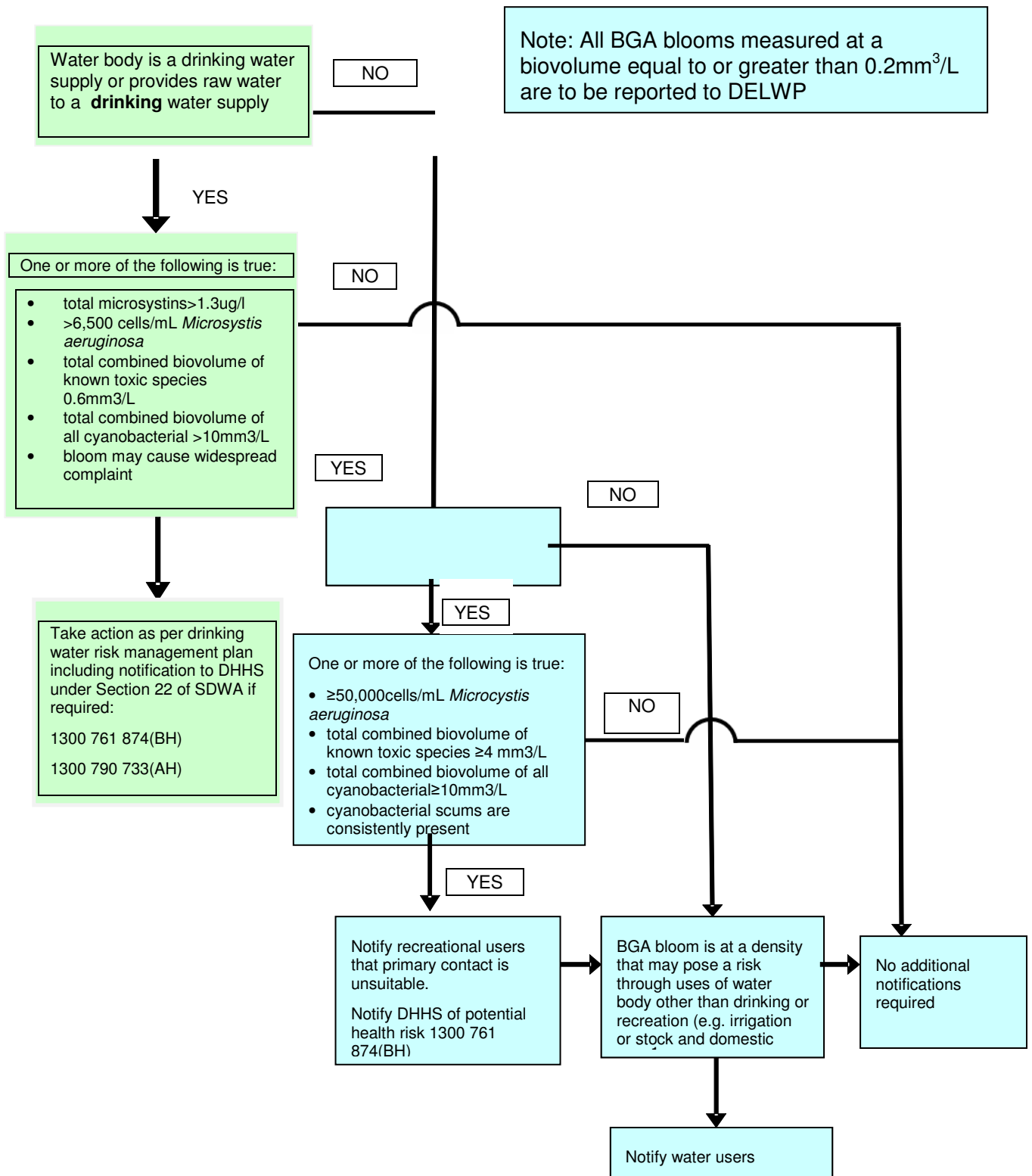
Risk-based trigger values for BGA in water bodies used for drinking and recreation are provided in the following sections. These trigger values have been derived *from Management Strategies for Cyanobacteria (BGA): a Guide for Water Utilities* (Water Quality Research Australia 2010) and the *Guidelines for Managing Risks in Recreational Water* (NHMRC 2008).

Microcystis aeruginosa is the only BGA species currently characterised sufficiently to provide a trigger value based on cell counts alone. Trigger values for all other species are based on biovolume.

6.3 Additional Notifications

In some circumstances, other organisations, groups or individuals will need to be notified of BGA blooms. This will depend on the use of the water body and density and nature of the BGA bloom. These additional notifications are illustrated in the flowchart in Figure 3 and discussed in more detail in this section.

Figure 3: Additional Notifications for Blue-Green Algae Blooms



6.3.1 Drinking Water

BGA blooms in drinking water supplies that may pose a risk to public health or may result in widespread public complaint, for example through taste and odour issues, must be notified to the Department of Health and Human Services using the notification arrangements under Section 22 of the *Safe Drinking Water Act 2003* (SDWA). This notification should be made immediately via telephone (on 1300 761 874 during business hours or 1300 790 733 after hours) and followed up with written notification using “*Reporting known or suspected contamination of drinking water or the supply of non-complying water*” form. For information about reporting notifications and to obtain copies of the relevant form, visit the Notifications page of the DHHS Water webpage.

Department of Health and Human Services must be notified when:

Water supplied for drinking¹ may place public health at risk due to one or more of the following:

- Total microcystins are detected at ≥ 1.3 ug/L (microcystin-LR toxicity equivalents)
- *Microcystis aeruginosa* is present at $\geq 6,500$ cells/mL
- Total combined biovolume of known toxic cyanobacterial species ≥ 0.6 mm³/L
- Total combined biovolume of all cyanobacterial species ≥ 10 mm³/L

OR

- BGA is present in drinking water at levels that may cause widespread public complaint, for example through taste and odour.

Because Water Storage Managers (as defined under the SDWA) do not generally treat and supply drinking water to the public in Victoria, they may not be best placed to determine whether BGA in the raw water of a drinking water supply may place public health at risk. This means that the water supplier (as defined under the SDWA) may be the most appropriate entity to notify DHHS of BGA incidents under Section 22 of the Act. There are exceptions however, and the SDWA places obligations on both Water Storage Managers and Water Suppliers. As such this Circular cannot be prescriptive about who should notify DHHS of Section 22 incidents.

In all cases, DHHS expects the BGA Risk Management Plans of the Water Storage Manager and the Water Supplier to be integrated so a suitable communication protocol is in place. This protocol must clearly outline how details of BGA blooms are communicated between the water storage manager and water supplier, and who will notify DHHS if such a notification is required. This is a requirement under the SDWA.

A recommended framework for monitoring and managing BGA in drinking water supplies can be found in [Management Strategies for Cyanobacteria \(Blue-Green Algae\): A Guide for Water Utilities](#) (Water Quality Research Australia 2010).

¹ DHHS does not need to be notified where:

- Drinking water is not, or has not been, supplied from the water body during the period when the BGA bloom occurred (i.e. the water body has been isolated from supply).
- Drinking water treatment processes are in place that will effectively remove blue-green algal toxins or the potential cause of widespread public complaint.

6.3.2 Recreational Water

Notifications are required when a BGA bloom poses a public health risk in water bodies used for primary contact recreation.

BGA blooms in recreational water bodies are considered to pose a potential public health risk, for primary contact recreation. The Department of Health and Human Services must be notified when one or more of the following occurs:

- *Microcystis aeruginosa* is present at $\geq 50,000$ cells/mL
- Total combined biovolume of known toxic cyanobacterial species is ≥ 4 mm³/L
- Total combined biovolume of all cyanobacterial species is ≥ 10 mm³/L
- Cyanobacterial scums are consistently present²

In the case of these BGA blooms, the following groups should be notified:

- Recreational users of the water body (for example, through signage or media as appropriate);
- DHHS (on 1300 761 874 during business hours or by emailing EHO.Gippsland@dhhs.vic.gov.au); and
- Relevant stakeholders (such as local government, tourism bodies and recreation clubs).

Additional information on monitoring and managing BGA risks in recreational water bodies can be found in the [Guidelines for Managing Risks in Recreational Water](#) (NHMRC 2008).

6.3.3 Other Water Supplies

- Currently there is insufficient data to set risk-based trigger levels for BGA in water bodies used for other purposes, such as stock and domestic supplies or irrigation water. The Local Water Manager should undertake a risk assessment for BGA blooms in these water bodies to determine whether the water is potentially hazardous. If it is considered that a risk may be posed due to the presence of BGA, then all relevant users of the water should be notified.
- For untreated domestic water uses (such as showering and bathing, cooking or other kitchen purposes and domestic garden watering), the use of the drinking water trigger levels for BGA are recommended. While this is likely to be conservative, it can be used in the absence of a more detailed risk assessment for the specific scenario in question.

Less conservative approaches can be adopted if a detailed risk assessment is completed.

7.0 LABORATORY TESTING OF SAMPLES

7.1 Removal of Warning Signs

During a BGA bloom, warning should remain in place until two consecutive results from representative samples confirm that levels of BGA have fallen below the alert levels. Sample results should be taken at a minimum of seven to ten days apart for testing. [Guidelines for Managing Risks in Recreational Water \(NHMRC 2008\)](#).

Warning signs should not be removed if scum continues to be present.

8.0 USE OF ALGAECIDES

Local Water Managers should only use appropriately registered (or permitted) products for the control of BGA. It is important to note the need to obtain temporary permits for use of copper sulphate.

Information relating to the registration and issue of permits for algaecide use is available from the [Australian Pesticides & Veterinary Medicines Authority](#) (APVMA) website.

Local Water Managers are reminded that before considering the use of an algaecide in any water body, they should contact the [Environment Protection Authority](#) (EPA).

Local Water Managers who are water suppliers or water storage managers under the SDWA are also reminded that their risk management plan under this Act must include details of procedures to control any residue or chemical by-products imparted to drinking water, as a result of the addition of chemicals to water supplied for drinking purposes (Regulation 6(1) (e) of the Safe Drinking Water Regulations 2005).

This means that where an algaecide has been applied in any water body normally used as a source of drinking water, the Local Water Manager needs to ensure that their procedure for returning the water body to supply includes an assessment of safe levels of any algaecide residue or chemical by-products that could be transferred to the drinking water supply.

9.0 REFERENCES

Australasian Inter-service Incident Management System ([AIIMS](#)).

<https://training.fema.gov/hiedu/docs/cem/comparative%20em%20-%20session%2021%20-%20handout%2021-1%20aiims%20manual.pdf>

Australian Pesticides & Veterinary Medicines Authority website [Australian Pesticides and Veterinary Medicines Authority](#)

DELWP Blue-Green Algae webpage - <https://www.water.vic.gov.au/waterways-and-catchments/rivers-estuaries-and-waterways/blue-green-algae>

Emergency Management Manual Victoria - <https://www.emv.vic.gov.au/policies/emmv>

Gayle Newcombe, Jenny House, Lionel Ho, Peter Baker and Michael Burch, Management Strategies for Cyanobacteria: A guide for water utilities. Water Quality Research Australia, 2010

https://www.researchgate.net/publication/242740698_Management_Strategies_for_Cyanobacteria_Blue-Green_Algae_A_Guide_for_Water_Utilities

National Health and Medical Research Council, *Guidelines for Managing Risks in Recreational Water*, Australian Government, 2008. <https://nhmrc.gov.au/about-us/publications/guidelines-managing-risks-recreational-water>

Safe Drinking Water Act (Vic) 2003

http://classic.austlii.edu.au/au/legis/vic/consol_act/sdwa2003188/

Safe Drinking Water Regulations (Vic) 2015

[http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubStatbook.nsf/93eb987ebadd283dca256e92000e4069/5D8AE33439EB5B2CCA257E7B00146316/\\$FILE/15-088sra%20authorised.pdf](http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/PubStatbook.nsf/93eb987ebadd283dca256e92000e4069/5D8AE33439EB5B2CCA257E7B00146316/$FILE/15-088sra%20authorised.pdf)

APPENDICES

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Appendix 1a: Incident Management Response Levels

Risk based management of BGA blooms for DRINKING WATER or RAW WATER (BULK WATER RESERVOIRS) supplies

Incident Management Level (and characteristics of blooms)	Consequences of Bloom	Control Agency	Monitoring Required	Field Actions Required	Communication Response
1 Minor Bloom detected and $\geq 0.2 \text{ mm}^3 / \text{L BioVolume}$	<ul style="list-style-type: none"> • May have waterway environmental or potential public health impacts. • Can be dealt with by on site resources of a single agency • There is no adverse publicity, injury, or environmental impacts • No involvement of the Emergency Services 	Local Water Manager	<ul style="list-style-type: none"> • Routine cell count monitoring • Visual Observations of extent and potential for off-site contamination 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Inform DELWP • Inform Regional Co-ordinator
2 Moderate $\geq 0.4 \text{ mm}^3 / \text{L BioVolume Toxic BGA}$ or $>5000 \text{ cells/ml } Microcystis \text{ aeruginosa}$ or $>1.3\mu\text{g/L microcystins}$ or $>10 \text{ mm}^3 / \text{L BioVolume Total BGA}$ And One location	<ul style="list-style-type: none"> • Adverse publicity • May have waterway environmental or potential public health impacts. • Can be dealt with by on site resources of a single agency 	Local Water Manager	<ul style="list-style-type: none"> • Increase monitoring BGA cell counts (frequency) • Toxicity testing • Visual Observations of extent and potential for off-site contamination 	<ul style="list-style-type: none"> • Erect Signs on Site • Alter treatment 	<ul style="list-style-type: none"> • Inform DH (as per section 7.3.1 in BGA circular) • Inform DELWP • Inform Regional Co-ordinator • Notify other concerned agencies • Inform Press and users
3 Major $\geq 0.4 \text{ mm}^3 / \text{L BioVolume Toxic BGA}$ or $>5000 \text{ cells/ml } Microcystis \text{ aeruginosa}$ or $>1.3\mu\text{g/L microcystins}$ or $>10 \text{ mm}^3 / \text{L BioVolume Total BGA}$ And Many Locations	<ul style="list-style-type: none"> • Adverse publicity • Could involve substantial risk of serious injury or death, may have serious environmental impacts, or could have public health implications. • Executive level management of the issues and implications that may flow from the event. • Needs the resources of multiple agencies to deal with issues and actions 	Regional Co-ordinator	<ul style="list-style-type: none"> • Increase monitoring BGA cell counts (frequency and locations) • Toxicity testing • Visual Observations of extent and potential for off-site contamination 	<ul style="list-style-type: none"> • Erect Signs on Site • Alter management to avoid BGA • Alter treatment to reduce risk 	<ul style="list-style-type: none"> • Inform DH(as per section 7.3.1 in BGA circular) • Inform DELWP • Inform Regional Co-ordinator • Notify other concerned agencies • Inform Press and users • Inform Public
Emergency Many Locations	<ul style="list-style-type: none"> • Catastrophic • As per Emergency Management Plan • Emergency due to the actual or imminent occurrence of an event which in any way endangers or threatens to endanger the safety or health of any person in Victoria or which destroys or damages, or threatens to destroy or damage any property in Victoria, including, without limiting the generality of the foregoing. 	DHHS	<ul style="list-style-type: none"> • As per Emergency Management Plan 	<ul style="list-style-type: none"> • As per Emergency Management Plan 	<ul style="list-style-type: none"> • As per Emergency Management Plan

Due to the varying toxicity and treatment of different blue-green algae species, each individual case will require a specific investigation and action plan.

Appendix 1b: Incident Management Response Levels

Risk based management of BGA blooms for RECREATIONAL WATER supplies

Incident Management Level (and characteristics of blooms)	Consequences of Bloom	Control Agency	Monitoring Required	Field Actions Required	Communication Response
<p>1 Minor</p> <p>Bloom detected and $\geq 0.2 \text{ mm}^3 / \text{L}$ Biovolume</p>	<ul style="list-style-type: none"> • May have waterway environmental or potential public health impacts. • Can be dealt with by on site resources of a single agency • There is no adverse publicity, injury, or environmental impacts • No involvement of the Emergency Services 	Local Water Manager	<ul style="list-style-type: none"> • Routine cell count monitoring • Visual Observations of extent and potential for off-site contamination 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Inform DELWP • Inform Regional Co-ordinator
<p>2 Moderate</p> <p>$\geq 4 \text{ mm}^3 / \text{L}$ BioVolume Toxic BGA or $>50,000 \text{ cells/ml}$ <i>Microcystis aeruginosa</i> or $>10 \text{ mm}^3 / \text{L}$ BioVolume Total BGA</p> <p>and One location</p>	<ul style="list-style-type: none"> • Adverse publicity • May have waterway environmental or potential public health impacts. • Can be dealt with by on site resources of a single agency 	Local Water Manager	<ul style="list-style-type: none"> • Increase monitoring BGA cell counts (frequency) • Toxicity testing • Visual Observations of extent and potential for off-site contamination 	<ul style="list-style-type: none"> • Erect Signs on Site 	<ul style="list-style-type: none"> • Inform DH as per section 7.3.2 in BGA circular) • Inform DELWP • Inform Regional Co-ordinator • Notify other concerned agencies • Inform Press and users
<p>3 Major</p> <p>$\geq 4 \text{ mm}^3 / \text{L}$ BioVolume Toxic BGA or $>50,000 \text{ cells/ml}$ <i>Microcystis aeruginosa</i> or $>10 \text{ mm}^3 / \text{L}$ BioVolume Total BGA</p> <p>and Many Locations</p>	<ul style="list-style-type: none"> • Adverse publicity • Could involve substantial risk of serious injury or death, may have serious environmental impacts, or could have public health implications. • Executive level management of the issues and implications that may flow from the event. • Needs the resources of multiple agencies to deal with issues and actions 	Regional Co-ordinator	<ul style="list-style-type: none"> • Increase monitoring BGA cell counts (frequency and locations) • Toxicity testing • Visual Observations of extent and potential for off-site contamination 	<ul style="list-style-type: none"> • Erect Signs on Site • Alter management to avoid BGA • Alter treatment to reduce risk 	<ul style="list-style-type: none"> • as per section 7.3.2 in BGA circular) Inform DELWP • Inform Regional Co-ordinator • Notify other concerned agencies • Inform Press and users • Inform Public

Due to the varying toxicity and treatment of different blue-green algae species, each individual case will require a specific investigation and action plan.

Appendix 2: Responsible Local Water Managers and Associated Water Bodies

Water Body	Public Access	Local Water Manager	Contact Details
Battery Creek	No	South Gippsland Water	Kerry Matthews 03 5682 0448 / 0438 318 487 kmatthews@sgwater.com.au
Belleview Creek	Fishing club only		
Cooks Dam	No		
Coalition Creek	No		
Deep Creek	No		
Foster Dam	No		
Korumburra No.1 Coalition Creek Reservoir	Golf Club only		
Korumburra No.2 Ness Creek Reservoir	Fishing club only		
Korumburra No.3 Bellview Creek Reservoir	Fishing club only		
Lance Creek	No		
Leongatha No 1	No		
Leongatha No 2	Fishing club only		
Leongatha No 3 Hyland Reservoir	Fishing club only		
Leongatha No 4 Western Reservoir	Fishing club only		
Little Bass Reservoir	Fishing club only		
Ness Creek Reservoir	Fishing club only		

Responsible Local Water Managers and Associated Water Bodies			
Water Body	Public Access	Local Water Manager	Contact Details
Candowie Reservoir	No	Westernport Water	Dean Chambers Phone (03) 59564167 westport@westernportwater.com.au
Dam Waratah Bay	No	South Gippsland Shire Council	Penni Ellicott pennie@southgippsland.vic.gov.au
Dam Yanakie	No		
Seaspray (Merrimans Creek)	Yes	Gippsland Water	Fiona Pfeil Phone (03) 5177 4768 pfeilf@gippswater.com.au
Ayr Creek Lagoon	Yes	Bass Coast Shire Council	Derek Hibbert 5671 2438 0438 590 250 d.hibbert@basscoast.vic.gov.au
		Wellington Shire Council	samantha.king@wellington.vic.gov.au P 03 5142 3457/ M 0407534849

Appendix 3a: Response Group Members – LOCAL AGENCIES

Agency / Water Authority	Responsibility	Contact Details
South Gippsland Water PO Box 102 14-18 Pioneer Street, Foster, 3960	Regional Coordinator BGA Bloom Incident Controller for BGA blooms in all water bodies of South Gippsland Water management. Warning sign deployment and retrieval. Chair Planning Group. Oversee Regional responses & warnings. Provision of technical advice. Initiate Regional Response Group	Kerry Matthews Catchment and Water Resources Coordinator 03 5682 0448 / 0438 318 487 kmatthews@sgwater.com.au
Gippsland Water PO Box 348 Traralgon, 3844	Local Water Manager BGA Bloom Incident Controller for BGA blooms in all water bodies of Gippsland Water Corporation management. Warning sign deployment and retrieval.	Fiona Pfeil Scientific Officer –Catchment 5177 4768 / 5174 0103 / 0418 490572 pfeilf@gippswater.com.au
Westernport Water 2 Boys Home Road, Newhaven	Local Water Manager BGA Bloom Incident Controller for Candowie Reservoir	Dean Chambers Treatment Plant Manager 03 5678 8537/ 0417 366 475 dchambers@westernportwater.com.au
South Gippsland Shire Council Private bag 4 9 Smith Street, Leongatha 3953	Local Water Manager South Gippsland Shire BGA Bloom Incident Controller. Shire services, human health. Warning sign deployment and retrieval.	Penni Ellicott Coordinator of Grants Emergency Management 5662 9200 / 0459 083 164 pennie@southgippsland.vic.gov.au
Bass Coast Shire Council PO Box 118 Wonthaggi, Vic 3995	Local Water Manager Bass Shire BGA Bloom Incident Controller. Shire services, human health Warning sign deployment and retrieval	Derek Hibbert Emergency Management Coordinator 1300 226 278 / 0409 317 866 d.hibbert@basscoast.vic.gov.au
Wellington Shire Council PO Box 506 Sale 3850	Local Water Manager Wellington Shire BGA Bloom Incident Controller. Shire services, human health Warning sign deployment & retrieval	Samantha King Environmental Health Coordinator P 03 5142 3457/ M 0407534849 24Hr 1300 366 244 samantha.king@wellington.vic.gov.au
Parks Victoria PO Box 91 3A Main Street, Foster, 3960	Local Water Manager BGA Bloom Incident Controller. Warning sign deployment & retrieval	Greg Mattingley District Operations Coordinator 03 5683 9002 / 0419 546 015 gmatting@parks.vic.gov.au
West Gippsland CMA PO Box 1374, Traralgon 3844	Local Water Manager	Eleisha Keogh Water Team Leader 1300 094 262 eleishak@wgcm.vic.gov.au

Appendix 4: Water Testing Laboratories (NATA accredited)

Table A4-1 Water Testing Laboratories

Company	Contact Person	Email	Telephone
Testing for Algal Toxins			
Australian Water Quality Centre (AWQC) 250 Victoria Square Adelaide SA 5000	Customer Service Unit	awqccsu@sawater.com.au	T: 1300 653 366
ALS Global 22 Dalmore Drive Caribbean Business Park Scoresby VIC 3179	Kirsten Mudie	Kirsten.mudie@alsglobal.com	T: (03) 87568000
Algal Identification and Enumeration			
ALS Global 22 Dalmore Drive Caribbean Business Park Scoresby VIC 3179	Kirsten Mudie	Kirsten.mudie@alsglobal.com	T: (03) 87568000
ALS Global Barwon Laboratory 49 Carr Street South Geelong VIC 3220	Frank Matthies	Frank.matthies@alsglobal.com.au	T: (03) 5226 9249

Note: The laboratories listed above for algae identification are those laboratories that are NATA accredited for identification and enumeration of algae. The listing is purely for information purposes and does not imply DELWP or DHHS endorsement of any one of the laboratories.

Appendix 5: Web Based Data Entry & Notification Form

5a. Web Based Data Entry Address

<https://www.floodzoom.vic.gov.au/FIP.Site/Identity/Login>

5b. BGA Notification Form DEWLP

[Blue-Green Algae Notification Form \(Excel, 196.5 KB\)](#)

Appendix 6: Material and Equipment Held by Local Water Managers

Table A6-1: Material and Equipment held by Local Water Managers

Manager	Signage	Algaecides	Activated Carbon	Booms	Aerators	Boats
Southern Rural Water	✓					
South Gippsland Water	✓	✓	✓	✓	No	✓
Westernport Water						
Gippsland Water		✓				✓
South Gippsland Shire Council						
Bass Coast Shire Council	✓					
Wellington Shire Council	✓					
West Gippsland CMA						2 Flat bottomed punts
Parks Victoria						

Appendix 7: Media Outlets

Table A7-1: Media Outlets

Media Outlets	Location	Phone	Email
ABC Gippsland	Sale		Gippsland@abc.net.au
3MFM Radio	Inverloch	56741900	radio@3mfm.com.au
3GG Gippsland Radio	Warragul	56222463	3gglocalnews@capitalradio.com.au
WIN Television	Traralgon	5173 7870	gipnews@winvic.com.au
Prime TV	Traralgon	0421 259 251	news.gippsland@primetv.com.au
Nine Regional News	Traralgon		ninenewsgippsland@nine.com.au
Papers			
Foster Mirror	Foster	56822577	mirror@tpg.com.au
South Gippsland Sentinel Times	Leongatha	56551422	news@sgst.com.au
Leongatha Star	Leongatha	56622294	editorial@thestar.com.au
Yarram Standard News	Yarram	51825013	news@standardnews.com.au

Table A7-2: Media Release Protocol

Media Release Activity	Responsible Officer	Contact Details		
		Phone/Mobile	Fax	Email
Preparation of technical material for Media Release	Chris Barry	5152 0407 0409 320 423	5152 0600	Chris.barry@DELWP.vic.gov.au
Drafting and review of Media Release by DELWP (Regional Coordinator)	DELWP Regional Communications Adviser – Rachel Dawkins <i>NOTE: If changes are made to an article then these need to be confirmed with Incident Controller AND If article has reference to seafood safety then the draft media release must also be reviewed by the DHHS Media Unit (see * below). Final authorisation from Incident Controller before distribution</i>	5147 0864 0407 821 153	5147 0888	Julianne.sargent@DELWP.vic.gov.au
*Review of Media Release by DHHS – when article has reference to seafood safety	DHHS Media Unit Bram Alexander and Houa Tia - Water Program DELWP Regional Communications Adviser (Rachel Dawkins) <i>NOTE: Agreement on Media Release wording by the DHHS and DELWP Media Units alone is NOT approval for release of the article. The wording, if changed from the draft, must be cleared by the Incident Controller and DHHS Officer.</i>	9096 8803 0412-260-811 9096 0414 1300 761 874 5147 0864 0407 821 153	9096 9182 5147 0888	DHHS Media Unit Melb: Bram.Alexander@dhhs.vic.gov.au water@dhhs.vic.gov.au julianne.sargent@DELWP.vic.gov.au
Forwarding of Media Release to Media as directed	DELWP Regional Communications Adviser, Julianne Sargent <i>NOTE: Issue is usually as to sending to Local/State/National Media or not.</i>	5152 0404 0448 806 830	5147 0888	Julianne.sargent@DELWP.vic.gov.au
Forwarding of Media Release to Incident Response Group members Agencies and Web Site Manager	DELWP Regional Communications Adviser, Julianne Sargent	5152 0404 0448 806 830	5147 0888	Julianne.sargent@DELWP.vic.gov.au
Loading of Media Release & Public Update to Web Site	DELWP Regional Communications Adviser, Julianne Sargent liaising with Melbourne Comms	5152 0404 0448 806 830	5147 0888	Julianne.sargent@DELWP.vic.gov.au
Radio/Press/TV Interviews Technical matters	Incident Controller: Regional Coordinator	5152 0407	5152 0600	Chris.barry@DELWP.vic.gov.au
Local Radio/TV Interviews based on Bloom Public Updates	Incident Controller: Regional Coordinator	5152 0407	5152 0600	Chris.barry@DELWP.vic.gov.au
Bloom Report to Melb Press as authorized	DELWP Regional Communications Adviser – Rachel Dawkins	5152 0404 0448 806 830	5147 0888	Julianne.sargent@DELWP.vic.gov.au

Appendix 8: Public Update Distribution List

NAME	AGENCY	EMAIL ADDRESS / PHONE
Derek Hibbert	Bass Coast Shire Council	d.hibbert@basscoast.vic.gov.au 5671 2438 0438 590 250
Konrad Gill	DELWP Program Manager Critical Infrastructure Resilience	konrad.gill@delwp.vic.gov.au 03 9637 8775 M: 0431 500 111
Chris Barry	DELWP Regional Algae Coordinator	Chris.Barry@delwp.vic.gov.au 03 5152 0407 / 0409 320 423
Rachel Dawkins	DELWP Media and Communications Adviser	Rachel.Dawkins@delwp.vic.gov.au 5147 0864 M: 0407 821 153
Nick Dudley	DEDJTR Regional Leader Land Health Program	Nick.Dudley@ecodev.vic.gov.au 0428 562139
Yolanda Tri	DHHS, Senior Health Protection Officer, Emergency Management and Health Protection South Division	EHO.Gippsland@dhhs.vic.gov.au 38765 7045 m: 0439 879 723
Regional Manager	Environmental Protection Authority	epa.gippsland@epa.vic.gov.au 1300 372 842
Fiona Pfeil	Gippsland Water Scientific Catchment Officer	pfeilf@gippswater.com.au 03 5177 4768
Greg Mattingly	Parks Victoria	gmatting@parks.vic.gov.au 5683 9002 / 0419 546 015
Regional Manager	State Emergency Service	east@ses.vic.gov.au 24Hr Paging: 1800 899 927 Pager#: 30148
Jessica Cox	Southern Rural Water	envirogrp@srw.com.au 03 5139 3112/General No: 1300 39 510
Penni Ellicott	South Gippsland Shire Council Coordinator Major Projects / Emergency Management	pennie@southgippsland.vic.gov.au 5662 9200 / 0459 083 164
Kerry Matthews	South Gippsland Water Water Resources and Catchment Coordinator	kmatthews@sgwater.com.au 56820448 / 0438318487
Officer in Charge	Wonthaggi Police Station	Wonthaggi.uni@police.vic.gov.au 56714100
Samantha King	Wellington Shire Council	samantha.king@wellington.vic.gov.au P 03 5142 3457/ M 0407534849
Eleisha Keogh	West Gippsland CMA	EleishaK@wgcm.vic.gov.au 1300 094 262 / 0407 352 103
Dean Chambers	Westernport Water	dchambers@westernportwater.com.au 0417 366 475