



Environmental Factors Guideline

Surf Life Saving Australia

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1 TSUNAMI

1.1 DEFINITIONS

Tsunami - a series of waves travelling across the ocean due to a sudden displacement of a large body of water. This displacement can be caused by events such as undersea earthquakes, landslides, volcanic eruptions or even asteroid impacts.

Emergency Management Australia (EMA) - represents is charged with assisting States and Territories to develop their emergency management capabilities to protect all Australian citizens and their property. It provides national leadership in the development of measures to reduce risk to communities and manage the consequences of disasters. EMA is part of the Federal Attorney-General's Department.

State Emergency Authority (SEA) - Has the overall responsibility of coordinating and managing wide-scale emergencies and disasters.

Bureau of Meteorology (BOM) - provides overall national strategic planning, management and coordination of the Bureau's integrated observations, telecommunications and computing infrastructure and its weather, climate and hydrological services. It also includes the National Climate Centre, the Bureau of Meteorology Training Centre and the Bureau of Meteorology Research Centre.

1.2 EXECUTIVE SUMMARY

- Surf Life Saving Australia has developed a tsunami response plan including pre-impact, impact and post-impact guidelines.
- Surf Life Saving, and other lifesaving services, will be the first point for warning, closing and evacuating beaches.
- This would be done only if it is safe to do so, and as directed by the state/territory Surf Life Saving centre or service supervisor.
- The appropriate authority will instruct Surf Life Saving when to begin rescue and recovery following the impact of tsunami.
- During a tsunami event, personal safety remains the priority and action should only be taken when it is safe to do so.

1.3 SLSA & TSUNAMI EMERGENCY RESPONSE

SLS works closely with council lifeguard services in managing Australia's beaches. SLS is the primary responder on beach management should a tsunami occur on the Australian coastline. SLS has the capacity to assist by:

- warning the beach-going public through its communication points around the coastline, including the public address system and;
- providing adequate rescue and emergency care, through the active membership volunteer and professional surf lifesaving clubs, and support operation services.

The SEA in each state/territory will have the overall responsibility of coordinating and managing of a tsunami warning. The SEA may also delegate particular responsibilities to SLS, such as warning the community or assisting in rescue and recovery. It is important that SLS should act upon its Tsunami Response Plan only after it has been asked to do so by the relevant SEA. It is not SLS's responsibility to determine if a Tsunami Warning should be issued or not, with subsequent plans put in place.

The Bureau of Meteorology (the Bureau) is the delegated authority to issue a tsunami warning. The SEA then determines what level of response should be taken by relevant authorities, such as SLS.

1.4 SLS RESPONSE GUIDELINES

Surf Life Saving Australia has developed a response guideline for a tsunami event. This guideline explains the processes that are to be considered by Surf Life Saving State/Territory centres, and associated bodies, when developing a Tsunami Response Plan. All lifesaving services, including lifesaving clubs, council lifeguards, support operations etc, must contact their respective state/territory centre to confirm their state/territory specific operational procedures.

There are three distinct components of a tsunami response plan:

- **Pre-impact.** Activities carried out during this period are precautionary and are focused on protecting life.
- **Impact.** This phase is likely to last several hours, within which the impact of a series of separate waves will occur.
- **Post-impact.** This phase can be associated with the time directly after the first wave and/or after a series of waves. It begins after the damaging effects of the tsunami have been experienced.

For regional and distant tsunami, there may be a period before impact of several hours to almost a day. This depends on where the tsunami has been generated.

It is critical that this time is used effectively to:

- ensure sufficient warning time is given
- evacuate people at risk
- implement measures to reduce property damage
- minimise disruption to essential services and;
- reduce the requirement for post impact functions.

Lifesaving services will use the appropriate response plan according to the level of warning issued by the Bureau of Meteorology (BOM).

There are three levels of warning:

- No action required.
- Marine based threat.
- Marine and land based threat.

1.5 IMPORTANT NOTES

Always confirm with your direct supervisor before initiating, or finalising any component of a response plan.

The Australian Tsunami Warning System has been implemented to track any possibility of tsunami affecting the Australian coastline. However, there is still the possibility one may impact on Australia without any warning at all. It is important to know what natural signs could come before a tsunami.

If a tsunami wave is about to impact on the coastline you are responsible for, and there is no time to confirm with your direct Lifesaving Supervisor (ie. Surfcom or area Director of Lifesaving) you could:

- evacuate people immediately from the water and off the beach area using emergency evacuation flash and alarm, and public address systems
- notify Surfcom or area Director of Lifesaving or;
- monitor situation if possible.

1.5.1 No threat

If this warning is issued, you will receive the following notification: 'An undersea earthquake has been detected, however it has not generated a tsunami, or the tsunami poses no threat to Australia and its offshore territories'. A Level 1 warning to the Australian public is a warning that lifesaving services need to be aware of. There may not be

an immediate major threat to the community, however, normal wave patterns and tidal currents may be affected enough to cause unusual conditions at the coastline that could impact on your lifesaving services area. These conditions can last up to ten days after a tsunami event.

There may not be any obvious features that a tsunami has impacted your area and the three components of a tsunami response plan, being pre-impact, impact and post-impact, may not be directly evident. It is important to keep in mind the following actions:

Monitor surf conditions for unusual rip and tidal currents - up to six days after.

Advise Surfcoms of any change in conditions - up to ten days after.

Increase surveillance of the people using the coastline, especially through deployment of Support Operations at unpatrolled locations - up to ten days after.

1.5.2 Marine based threat

If this warning is issued, you will receive the following notification: 'Warning of potentially dangerous waves, strong ocean currents in the marine environment and the possibility of only some localised overflow onto the immediate foreshore'.

1.5.2.1 Pre-impact

Below are examples of what a tsunami response plan for Level 2 may include:

- confirmation that the tsunami warning is official with your direct lifesaving service supervisor i.e. Director of Lifesaving
- coordination of your local lifesaving service according to your direct supervisor's instructions
- warning any communities in the direct vicinity of the beach using public address systems and/or lifesaving craft (only if directed and is safe to do so)
- evacuation of any public from the immediate sand/beach according to the level of warning using PA system and/or evacuation flag
- pre-deployment of resources to staging areas outside the likely impact area (at Level 2 the staging area may be the back of the beach)
- restriction of access to the likely impact areas by establishing signs i.e. Beach Closed signs and red flag or other as directed (at Level 2 lifesaving services may remain at the back of the beach to continue evacuation)
- support operations vessels on standby
- support operation vessels/craft positioned according to Lifesaving Supervisor
- monitoring of likely impact areas
- coastal watch cameras and/or support operation craft i.e. offshore boats or;
- management of the media - direct all media enquiries to State/Territory centre.

1.5.2.2 Impact

Below are examples of what a tsunami response plan for Level 2 may include:

- monitoring of likely impact areas (at Level 2 this can be from the back of the beach)
- detection of tsunami impact
- continued warning and evacuation of threatened communities to safe areas. At Level 2 this can be conducted from the beach or;
- rescue of persons only if safe to do so and/or have been instructed to do so.

1.5.2.3 Post-impact

Post impact can be seen for several hours after initial impact.

Below are examples of what a tsunami response plan for Level 2 may include:

- confirm ability to proceed with Post-impact procedures with direct Lifesaving Services Supervisor
- reconnaissance of areas likely to have been impacted
- search and rescue of people in the immediate coastal environment
- treatment of sick or injured people
- re-open beach only when direct lifesaving service supervisor has informed you and you have the capacity to do so (do not take instructions from media) or;
- debrief.

1.5.3 Land and marine based threat

If this warning is issued, you will receive the following notification: 'Warning for low-lying coastal areas of major land inundation, flooding, dangerous waves and strong ocean currents'.

1.5.3.1 Pre-impact

Below are examples of what a tsunami response plan for Level 3 may include:

- confirmation that the tsunami warning is official with your direct lifesaving service supervisor i.e. Director of Lifesaving
- coordination of your local lifesaving service according to your direct supervisor's instructions
- warning any communities in the direct vicinity of the beach using public address systems and/or lifesaving craft (only if directed and is safe to do so)
- evacuation of any public from the immediate sand/beach according to the level of warning using PA system and/or evacuation flag
- pre-deployment of resources to staging areas outside the likely impact area (at Level 3, staging area may be a few kilometres inland to be pre-determined)
- restriction of access to the likely impact areas by establishing signs i.e. Beach Closed signs and red flag or other as directed (at Level 3, communicate to the public via PA system and signage and evaluate all lifesaving service personnel and equipment where possible to a 'staging area' inland)
- support operations vessels on standby (at Level 3, all mobile support operation vessels evacuated to staging area)
- monitoring of likely impact areas
- Level 3 coastal watch cameras and/or aerial surveillance i.e. helicopters only or;
- management of the media (direct all media enquiries to State/Territory centres).

1.5.3.2 Impact

Below are examples of what a tsunami response plan for level 3 may include:

- monitoring of likely impact areas (at Level 3, from 'staging area' and using technology such as Coastal Watch)
- detection of tsunami impact
- continued warning and evacuation of threatened communities to safe areas (at Level 3, only to be conducted by aerial capabilities) or;
- rescue of persons (at Level 3, it is highly recommended not to perform a rescue during Impact phase unless via aerial capabilities).

1.5.3.3 Post-impact

Post impact can be seen for several hours or even days after initial impact.

Below are examples of what a tsunami response plan for Level 3 may include:

- confirm ability to proceed with post impact procedures with direct Lifesaving Services Supervisor
- reconnaissance of areas likely to have been impacted
- search and rescue of people in the aquatic environment (at Level 3, primarily the immediate coastal environment. However, it may be tasked as a secondary priority to inland search and rescue)
- treatment of sick or injured people
- re-open beach only when a direct lifesaving service supervisor has informed you and you have the capacity (do not take instructions from media) or;
- debrief

1.5.4 Procedures to be followed after the impact of tsunami

Actions may include:

- reconnaissance of areas likely to have been impacted
- search and rescue of people trapped and injured
- response to collapsed structures, fires and hazmat incidents
- treatment of sick and injured people
- provision of accommodation and welfare services for displaced people or;
- management of pets and companion animals belonging to displaced persons.

1.6 FURTHER INFORMATION

For further information regarding your specific state based operational procedure, Surf Life Saving state/territory contacts are:

- New South Wales (02) 9471 8000
- Queensland (07) 3846 8000
- Victoria (03) 9676 6900
- South Australia (08) 8354 6900
- Western Australia (08) 9207 6666
- Tasmania (03) 6223 5555
- Northern Territory (08) 8985 6588

State Emergency Authorities (SEA) in each state/territory are:

- Queensland - Emergency Management Queensland (EMQ)
- New South Wales - State Emergency Service (SES)
- Victoria - State Emergency Service (SES)
- Tasmania - Police
- South Australia - State Emergency Service (SES)
- Western Australia - Fire and Emergency Services Authority (FESA)
- Northern Territory - Police Fire and Emergency Services (PFES)

2 SUN SAFETY

2.1 INTRODUCTION

Surf Life Saving Australia (SLSA) will ensure that all members who participate in SLSA activities are both informed and protected against the harmful effects of the sun's ultraviolet radiation (UVR) whenever they are outdoors. SLSA will promote to all parties a knowledge of the great importance of the need for protection from skin and eye damage caused by UVR. All Members must participate in and promote all sun safe guideline suggestions.

The sun safety guideline is one of the most important policies developed, as it may directly affect the health of SLSA Members. This Guideline is acknowledged as the minimum standard for a SLS lifesavers and ALS lifeguards. They now closely correspond to the recommendations of Workcover and Cancer Councils in each State for skin protection for outside workers.

2.2 THE FACTS

- a. Australia has the highest rate of skin cancer in the world. Over two-thirds of Australians will develop some form of skin cancer during their lives.
- b. About 1000 people in Australia die each year from skin cancer.
- c. Too much exposure to UVR or repeated sunburn, especially in childhood, damages the skin increasing the risk of skin cancer in later life.
Note: both cumulative exposure (without actual 'sunburn') and repeated sunburn (not necessarily 'severe') contribute to increasing the risk.
- d. Severe sunburn, particularly in the young increases the later risk of skin damage and skin cancers.
- e. If we can protect people from birth to 17 years of age they have 75% less risk of developing skin cancer in later life.
- f. A suntan is a sign of damaged and weakened skin.
- g. School, recreation and sport may expose people to the sun for long periods.
- h. The style, type and amount of clothing we wear often does not suit our intense sunshine with its high levels of UVR.
- i. Lifelong participation in outdoor sport and recreation mean many Australians are exposed to dangerously high levels of UVR.
- j. 95% of skin cancer can be cured if detected and treated early.
- k. UVR has been shown to cause eye damage, which includes cataracts and pterygium. This damage may start in childhood.
- l. Reflected UVR may cause sunburn even under shelter, and other methods of sun protection are essential.
- m. UVR is present in high levels on cloudy days also, and all sun protection methods should be used on cloudy, as well as sunny days.
- n. There is no such thing as "windburn" – this is solar damage (the same as "sunburn") from UVR, usually in cloudy weather as UVR easily penetrates clouds.

2.3 SUN SAFETY FOR SLSA ACTIVITIES

The health of participants in surf lifesaving activities is of a primary concern to SLSA.

It is far better to prevent skin cancer by regularly practising simple protective measures. Skin cancer is preventable, and like any other medical condition is best dealt with by simple protective measures. It is also acknowledged that cataracts and other eye diseases are related to UVR and that correct sunglasses will prevent or reduce these eye problems.

SLSA strongly recommends sun protection during all SLSA activities. It is the responsibility of all SLSA Members to use all protective equipment provided (hats, uniforms, sunscreen, shade structures, sunglasses etc), adopt sun safe practices (re-applying sunscreen, minimising time outdoors during peak UV times etc). As well as their own personal

protection, SLSA Members should set an example and be a good role model for younger Members and the community in general.

The following standards outlined in this Guideline are acknowledged as minimum standards for the volunteer lifesaver and SLSA professional lifeguards.

2.4 DEFINITIONS OF SUN SENSE PROTECTION

2.4.1 Shelter

- a. Materials used to provide shade should cast a dark shadow (i.e. block out UVR to a minimum of 50%).
- b. Provision of either natural or artificial shade over the patrol arena or other patrolled areas, to give adequate shade for those on patrol.
- c. Protective covering over all patrol or observations towers.
- d. Specific shaded areas in carnivals to provide shade for both competitors and officials.

NOTE: It is possible to get sunburn under shelter due to reflection of UVR from sand and water. Other precautions listed must still be used.

2.4.2 “Protective clothing”

In this Guideline means the use of:

- a. hats - wide-brimmed (minimum brim width of 8cm.) with dark (non-reflecting) underside of the brim, or “legionnaire style” hats - those having side pieces protecting the ears and neck;
- b. long-sleeved shirts with high neck collars – made of UPF 50+ material (close-weave material that blocks UVR);
- c. shorts - loose and long-legged.

2.4.3 Sunscreen

- a. use broad spectrum, water resistant SPF 30+ sunscreen;
- b. apply at least 20 minutes before exposure so that cream can be “absorbed” into the skin, for effective protection;
- c. reapply every 2-3 hours, or more often after swimming, or sweating heavily.

Note: With higher SPF sunscreens a small number of people may be sensitive to some types of sunscreens. If skin rashes occur, choose a brand designed for sensitive skin. (It is important for people who spend as much time outdoors as lifesavers to maintain the highest SPF).

Sunglasses – 100% UV resistant conforming to Australian Standard 1067 (as labelled on the swing tag) - having side protection from the sun’s rays, but which do NOT obscure peripheral vision.

2.5 RESPONSIBILITIES

2.5.1 Section 1 - All levels of SLSA

Taking into consideration the harmful effects from the ineffective protection of open weave clothing, when choosing uniforms SLSA and affiliates will conform to guidelines for sun safe clothing with tightly woven material with a UVR protection factor (UPF) of 50 or 50+.

SLSA and affiliates will strongly encourage the use of:

- a. sufficient shelter for patrols using either natural, or artificial shelters;

- b. patrol hats, shirts and shorts to conform with the standards above;
- c. broad-spectrum water-resistant SPF 30+sunscreen and sunglasses for all activities.

On patrol, maximum use will be made of existing natural shade – Patrol and Club Captains must enforce this. Where natural shade is not adequate SLSA and affiliates will ensure suitable structures or provide portable shade structures for Members wherever.

In accordance with SLSA's Patrol Uniform Guideline, it is mandatory that patrol Members wear the patrol uniforms provided at all times, except in a rescue situation or where conditions do not permit.

SLSA and affiliates will endeavor to schedule outdoor activities outside the hours of 10.00 am to 2.00pm (11.00 am and 3.00 pm Daylight Saving Time). This is especially important with junior carnivals or combined events.

Carnival Referees and Sectional Referees will promote officials' use of broad-spectrum water-resistant SPF 30+ sunscreen (with zinc cream on specific areas, if necessary), at all times during SLSA surf carnivals.

Note: Given the nature of surf lifesaving carnivals, which may run all day, SLSA strongly promotes its officials and competitors and observers to maintain high standards of sun safe including protective clothing, sunscreen and shelter.

Whilst participating in SLSA activities on the beach, or waiting for water events, members will be strongly encouraged to wear a wide brim hat or similar (see above) that protects the face, ears, neck, shoulders and crown of the head.

SLSA will promote sun safety in a positive way, through a variety of public relation tools, including written literature and education programs.

SLSA will strongly encourage trainers, coaches, officials and members in prominent positions to act as strong role models, to promote and use all sun protection available.

SLSA officials and carers will revise sun protection measures on a yearly basis.

Competitors are encouraged to wear sun protective clothing up to the start line of their event.

On completion of the race/event hats and T-shirts should be replaced.

March Past teams are encouraged to wear hats, T-shirts and shorts while competing. These should be wide-brimmed hats and long sleeved shirts with high collars and a UPF rating of 50 or higher, and shorts.

2.5.2 Section 2 - Parents and Guardians - Junior Activities

Club officials, parents and carers must apply the above standards wherever possible.

The following sun sense rules are strongly recommended:

- a. Literature on prevention of skin and eye damage should be given to all parents/guardians when their child/children are signed on each season.
- b. Parents/guardians of children participating in surf lifesaving activities should be provided with the SLSA sun safety guideline and encouraged to comply with it.
- c. All Junior Activities Officials parents/guardians are to promote the use of these protective measures by example.
- d. Parents/guardians should be strongly encouraged to purchase sun safe hats and protective uniforms for their child's/children's use and provide SPF 30+ broad-spectrum water-resistant sunscreen for their child/children during SLSA activities.
- e. Parents/guardians should promote sun protective behaviour to their child/children by personal example.

- f. Parents should provide Australian Standard (labeled as AS1067) sunglasses that filter 100% of UV rays for their child/children.
- g. For more information, please contact Cancer Council Australia.

2.6 IMPORTANT SAFETY TIPS TO REMEMBER

The six Ss'

- a. SHADE – natural or man-made
- b. SLIP! – on a T-shirt
- c. SLOP! – on a Sunscreen
- d. SLAP! – on a Hat
- e. SUNGLASSES – to Australian Standards
- f. SUNSHINE - awareness of times of the day especially around midday

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2.8 FURTHER READING

For training and information on skin protection for outdoor workers

- WorkCover - State Departments
- Cancer Council – States

3 LIGHTNING

3.1 INTRODUCTION

In statistical terms, lightning poses a greater threat to individuals than almost any other natural hazard in Australia, accounting for five to ten lives and well over 100 injuries annually. These figures are likely to increase in line with the growing proportion of people who are engaging in outdoor recreational activities.

Of the many lightning strike injuries each year, about 80 are due to people using normal telephones during thunderstorms when the phone system may suddenly become part of a highly charged electrical circuit. Related injuries may include hearing damage, burns and electrocution.

3.2 WHAT IS LIGHTNING?

Lightning is the discharge produced when differences between ground and atmospheric electrical charge are large enough (several hundred million volts) to overcome the insulating effects of air.

Lightning strikes can occur within the cloud, between clouds or between clouds and the ground. An average thunderstorm can release several hundred megawatts of electrical power.

Thunder is the sound produced by the explosive action of air heated by the lightning strike to temperatures as high as 20,000 degrees Celsius.

3.3 PROTECTION AGAINST LIGHTNING STRIKES

3.3.1 Outdoor Protection

The 30/30 Rule

The 30/30 Rule is recommended for lightning safety in the Australian Standard on Lightning Protection. The rule is designed to provide guidance on the suspension and resumption of activities in an outdoor environment.

It sets out the following principals:

Close Beach – Where the flash to bang count is 30 seconds, indicating that the lightning is 10km away. This is associated with significant risk that the strike could be at the patrol arena.

Open Beach – Where 30 minutes has passed since the last sighting of lightning. A typical storm travels at about 40 km/h. Waiting 30 minutes allows the thunderstorm to be approximately 20km away.

- i. With an approaching thunderstorm, and where the 30/30 Rule applies, all persons should be advised to leave the water and clear the beach immediately. The Patrol Captain should remove the patrol flags, close the beach and then the patrol should retire to the shelter of the clubhouse, maintaining a surveillance lookout from there.
- ii. Seek shelter in a 'hard top' vehicle or building - avoid small structures, patrol shelters, fabric tents and isolated or small groups of trees.
- iii. If in the open, away from shelter, crouch down (singly), preferably in a hollow, with feet together and remove metal objects from head and body. Do not lie down but avoid being the highest object in the vicinity.
- iv. If swimming, surfing or in a boat leave the water immediately and seek shelter.

- v. In the event of a surf carnival or special event, all effort should be made to ensure the safety of all personnel. All effort should be made by the carnival referee and/or organisers to delay the event until the danger has passed or cancel/postpone events completely.
- vi. Avoid the use of portable radios and mobile telephones during a thunderstorm. If emergency calls are required keep them brief.

3.3.2 Indoor Protection

- i. Avoid the use of telephones, radios, fax machines, computers and other electrical equipment. If emergency calls are required keep them brief.
- ii. Before the storm arrives disconnect external aerials and power leads to radios and other appliances.

3.4 FIRST AID

The normal emergency care procedures apply to any patients effected by lightning strikes. Ensure that the rescuer is in no danger of being struck by lightning. If the patient is not breathing commence resuscitation immediately.

3.5 DEFINITIONS

Lightning, 'means the discharge produced when differences between ground and atmospheric electrical charge are large enough (several hundred million volts) to overcome the insulating effects of air.'

Thunder, 'means the sound produced by the explosive action of air heated by the lightning strike to temperatures as high as 20,000 degrees Celsius.'

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