

# Shoalhaven EMPLAN

## Emergency Management Plan 2018



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**Authorisation**

The Shoalhaven Local Emergency Management Plan (EMPLAN) has been prepared by the Shoalhaven Local Emergency Management Committee in compliance with the State Emergency & Rescue Management Act 1989, Section 29 (1)

APPROVED

.....

**Chair**

**Shoalhaven Local Emergency Management Committee**

Dated:

ENDORSED

.....

**Chair**

**Illawarra South Coast Regional Emergency Management Committee**

Dated:

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## Document Control

Suggested amendments or additions to the contents of this Local Emergency Management Plan are to be made in writing to:

The Chairperson  
Shoalhaven Local Emergency Management Committee  
C/o: Shoalhaven City Council  
P O Box 42  
NOWRA NSW 2541

Proposed amendments or additions must be endorsed by the Shoalhaven Local Emergency Management Committee prior to inclusion.

Amendments or additions are to be certified in the following table.

Edition		Authority		Details
Number	Date	Approved	Endorsed	
1	2016	LEMC	REMC	First edition of the Shoalhaven EMPLAN
2	2018	LEMC		Minor changes including administrative changes, additions to vulnerable facilities and updated Census information to reflect latest Census. Changes discussed and endorsed at the LEMC – February 2018

## Distribution

Role or Agency	Number of Copies
Shoalhaven LEMC	
Local Emergency Operations Controller (LEOCON)	
Local Emergency Management Officer (LEMO)	
Local Emergency Management Committee (LEMC)	
Local Emergency Operations Centre (LEOC)	
Local Emergency Operations Centre (LEOC) Alternate	
Regional Emergency Management Officer (REMO)	
Ambulance Service of NSW	
Fire & Rescue NSW (FRNSW)	
Marine Rescue NSW	
NSW Department of Primary Industries (NSW DPI)	
NSW Police Force	
Australian Federal Police	
NSW Rural Fire Service (RFS) Shoalhaven District	
NSW State Emergency Services (NSW SES)	
NSW Health	
Shoalhaven Hospital, Milton Hospital	
Nowra Private Hospital	
Department of Family & Community Services	
Transport Services	
Engineering Services	
Roads & Maritime Services (RMS)	
Communication Services	
Environmental Services	
Media	
Shoalhaven Water	
Defence Liaison Officer	
Local Land Services	
National Parks & Wildlife Service	
HMAS Creswell – Estate and Infrastructure Group	

Role or Agency	Number of Copies
HMAS Albatross – Estate and Infrastructure Group	
Jervis Bay Emergency Management Committee	
Surf Life Saving NSW	
Red Cross Emergency Services	
Salvation Army	
Telstra	
Endeavour Energy	
South Coast Correctional Centre	
Defence Estate & Infrastructure Group	
Jemena Eastern Gas Pipeline	
ZNX Group – Nowra Gas Networks	
State Rail	
Country Regional Rail Network	
Forests NSW	
NSW Marine Parks Authority – Jervis Bay	
Parks Australia – Booderee National Park	
Department of Infrastructure & Regional Development - JB Territory	

NOTE: Distribution of EMPLAN is via email. No hard copies are printed. Restricted version of the Shoalhaven EMPLAN is available on Shoalhaven City Councils website at [www.council@shoalhaven.nsw.gov.au](mailto:www.council@shoalhaven.nsw.gov.au)

## Abbreviations

<b>ABS</b>	Australian Bureau of Statistics
<b>ADF</b>	Australian Defence Force
<b>BFB</b>	Bush Fire Brigade
<b>CBR</b>	Chemical, Biological or Radiological emergencies
<b>COP</b>	Common Operating Picture
<b>DACC</b>	Defence Assistance to the Civil Community
<b>EMOS</b>	Emergency Management Operating System
<b>EMPLAN</b>	State, Regional or Local Emergency Management Plan
<b>EOCON</b>	Emergency Operations Controller
<b>EPA</b>	Environmental Protection Authority
<b>ERM</b>	Emergency Risk Management
<b>FACS</b>	Family & Community Services NSW
<b>FRNSW</b>	Fire & Rescue NSW
<b>HAZMAT</b>	Hazardous Materials
<b>JMIC</b>	Joint Media Information Centre
<b>LEMC</b>	Local Emergency Management Committee
<b>LEMO</b>	Local Emergency Management Officer
<b>LEOC</b>	Local Emergency Operations Centre
<b>LEOCON</b>	Local Emergency Operations Controller
<b>LEP</b>	Local Environmental Plan
<b>LLS</b>	Local Land Services
<b>LO</b>	Liaison Officer
<b>MRNSW</b>	Marine Rescue NSW
<b>NSP</b>	Neighbourhood Safer Place
<b>REMC</b>	Regional Emergency Management Committee
<b>REMO</b>	Regional Emergency Management Officer
<b>REOC</b>	Regional Emergency Operations Centre
<b>REOCON</b>	Regional Emergency Operations Controller
<b>RFS</b>	Rural Fire Service
<b>RMS</b>	Roads & Maritime Services
<b>SEMC</b>	State Emergency Management Committee
<b>SEOC</b>	State Emergency Operations Centre
<b>SEOCON</b>	State Emergency Operations Controller

<b>SERCON</b>	State Emergency Recovery Controller
<b>SERM Act</b>	State Emergency & Rescue Management Act 1989 (as amended)
<b>SES</b>	NSW State Emergency Services
<b>SITREP</b>	Situation Report
<b>SO</b>	Standing Orders
<b>SOP</b>	Standard Operating Procedures
<b>SRA</b>	State Rail Authority
<b>TOC</b>	Transport Operations Centre
<b>VRA</b>	Volunteer Rescue Association



## Part 1 - Administration

### Authority

The New South Wales Government acknowledges that emergencies are inevitable and they can have potentially significant social, economic and environmental consequences. Accordingly, the State Emergency and Rescue Management Act, 1989 (as amended) was enacted in recognition of the need for appropriate and effective **Prevention, Preparation, Response** and **Recovery** measures for emergency situations.

Section 29 (1) of the State Emergency and Rescue Management Act delegates the preparation and review of Emergency Management Plans to Local Emergency Management Committees. This Local Emergency Management Plan records the agreed arrangements for the control of emergency situations and the coordination of resources during emergencies.

### Purpose

This plan details arrangements for the prevention of, preparation for, response to and recovery from emergencies within the Shoalhaven Local Government Area.

It encompasses arrangements for:

- emergencies controlled by combat agencies;
- emergencies controlled by combat agencies and supported by the Local Emergency Operations Controller (LEOCON);
- emergency operations for which there is no combat agency; and
- circumstances where a combat agency has passed control to the LEOCON.

### Objectives

The objectives of this plan are to:

- define participating organisation and Functional Area roles and responsibilities in preparation for, response to and recovery from emergencies;
- set out the control, co-ordination and liaison arrangements at the Local level;
- detail activation and alerting arrangements for involved agencies; and
- detail arrangements for the acquisition and co-ordination of resources.

### Scope

The plan describes the arrangements at local level to prevent, prepare for, respond to and recover from emergencies and also provides policy direction for the preparation of Sub Plans and Supporting Plans:

- Arrangements detailed in this plan are based on the assumption that the resources upon which the plan relies are available when required; and

- The effectiveness of arrangements detailed in this plan are dependent upon all involved agencies preparing, testing and maintaining appropriate internal instructions, and/or standing operating procedures.

## Principles

The following principles are applied in this plan:

- a) The Emergency Risk Management (ERM) process is to be used as the basis for emergency planning in New South Wales. This methodical approach to the planning process is to be applied by Emergency Management Committees at all levels.
- b) Responsibility for preparation, response and recovery rests initially at Local level. If Local agencies and available resources are not sufficient they are augmented by those at Regional level.
- c) Control of emergency response and recovery operations is conducted at the lowest effective level.
- d) Agencies may deploy their own resources from their own service from outside the affected Local area or Region if they are needed.
- e) The Local Emergency Operations Controller (LEOCON) is responsible, when requested by a combat agency, to coordinate the provision of resources support. EOCONs would not normally assume control from a combat agency unless the situation can no longer be contained. Where necessary, this should only be done after consultation with the Regional Emergency Operations Controller (REOCON) and agreement of the combat agency and the appropriate level of control.
- f) Emergency preparation, response and recovery operations should be conducted with all agencies carrying out their normal functions wherever possible.
- g) Prevention measures remain the responsibility of authorities/agencies charged by statute with the responsibility.

## Test and Review Process

The Shoalhaven Local Emergency Management Committee (LEMC) will review this Plan every three (3) years, or following any:

- activation of the Plan in response to an emergency;
- legislative changes affecting the Plan; and
- exercises conducted to test all or part of the Plan;
- In the event of that deficiencies are identified; and
- as roles and responsibilities change

## Security of Information

Emergency Management Plans (State, Region and Local), Sub Plans and Supporting Plans are public documents. However, they do not contain contact details or locations of operation centres, evacuation centres. This and other sensitive information is maintained separately and has a restricted and controlled distribution.

## Part 2 – Community Context

### Annexure A – Community Profile

#### General

The area was first settled by Europeans in 1822 when Alexander Berry established a settlement at Coolangatta, near the mouth of the Shoalhaven River. Much of the floodplain landscape and areas around Berry was changed from this time as the land was progressively cleared for agriculture and timber getting. By the 1850s settlements were also well established in Kangaroo Valley and Milton/Ulladulla. Again fertile lands were cleared for agricultural activities and timber getting. Early logging involved the removal of the prized rainforest species such as Red Cedar.

Shoalhaven LGA is a semi-rural municipality comprising 4660 square kilometres (453,063 hectares) and stretches from Berry to the north, the escarpment to the west and south to Durras Lake. The Shoalhaven is 160 kilometres south of Sydney. Shoalhaven City is bounded by the Wingecarribee Shire and the Municipality of Kiama in the north, the Tasman Sea and Jervis Bay Territory in the east, the Eurobodalla Shire in the south and the Queanbeyan Palerang and Goulburn Mulwaree Council areas in the west.

The City consists of 49 separate towns and villages, however most people live in the larger urban areas of Nowra/Bomaderry, Bay/Basin and Milton/Ulladulla. In the alphabetical listing below “localities” have also been included. The Estimated Resident Population as at 2016 is 101,777 with a population density of 0.22 persons per hectare.

Jervis Bay Territory – The Territory has its own emergency management arrangements that complement the arrangements in NSW. For the purposes of this Plan it is recognised that. While independent, the Jervis Bay Territory is supported by NSW arrangements and in particular the Shoalhaven Local Emergency Management Committee.

Name	Type	Population	Name	Type	Population
Back Forest	Locality	74	Kinghorne	Locality	0
Bamarang	Locality	14	Kings Point	Town	563
Bangalee	Locality	701	Kioloa	Town	204
Barren Grounds	Locality	0	Lake Conjola	Town	414
Barrengarry	Locality	149	Lake Tabourie	Town	607
Barringella	Locality	20	Little Forest	Locality	175
Basin View	Town	1412	Longreach	Locality	65
Bawley Point	Town	613	Manyana	Town	510
Beaumont	Locality	102	Mayfield	Locality	25
Beecroft Peninsula	Locality	0	Meroo Meadow	Locality	461
Bellawongarah	Locality	117	Milton	Town	1450
Bendalong	Town	77	Mogood	Locality	32
Berrara	Town	297	Mollymook Beach	Town	2209
Berringer Lake	Locality	18	Mundayong	Locality	0
Berry	Town	2434	Moollattoo	Locality	0

Name	Type	Population	Name	Type	Population
Berry Mountain	Locality	28	Morton	Locality	175
Bewong	Town	81	Mount Kingiman	Locality	5
Bolong	Locality	78	Mundamia	Locality	85
Bomaderry	Town	6366	Myola	Town	102
Boolijah	Locality	0	Narrawallee	Town	1288
Bream Beach	Locality	8	North Durras	Town	
Brogers Creek	Locality	41	North Nowra	Town	5510
Brooman	Locality	25	Nowra	Town	9134
Broughton	Locality	93	Nowra Hill	Locality	1825
Broughton Vale	Locality	160	Numbaa	Locality	126
Broughton Village	Locality		Old Erowal Bay	Locality	945
Browns Mountain	Locality	32	Orient Point	Town	642
Brundee	Locality	63	Parma	Locality	143
Buangla	Locality	3	Pebbly Beach	Locality	0
Budawang	Locality	0	Pointer Mountain	Locality	3
Budderoo	Locality	0	Porters Creek	Locality	0
Budgong	Locality	68	Pretty Beach	Locality	0
Bulee	Locality	0	Pyree	Locality	101
Bundewallah	Locality	3	Quiera	Locality	0
Burrier	Locality	54	Red Rocks	Locality	0
Burrill Lake	Town	1319	Sanctuary Point	Town	6641
Callala Bay	Town	2143	Sassafras	Locality	17
Callala Beach	Town	778	Shoalhaven Heads	Town	3005
Cambewarra	Locality	282	South Nowra	Locality	1028
Cambewarra Village	Town	1159	South Nowra	Town	1028
Cockwhy	Locality	17	St George	Locality	0
Comberton	Locality	27	St Georges Basin	Town	2640
Comerong Island	Locality	10	Sussex Inlet	Town	3434
Conjola Park	Town	337	Swanhaven	Town	155
Coolangatta	Locality	286	Tallowal	Locality	0
Coolumburra	Locality	0	Tapitallee	Locality	649
Croobyar	Locality	148	Terara	Town	280
Cudmirrah	Town	264	Termeil	Locality	226
Culburra Beach	Town	2675	Tianjara	Locality	0
Cunjurong Point	Locality	63	Tolwong	Locality	0
Currarong	Town	448	Tomerong	Town	940
Currowan	Locality	31	Touga	Locality	0
Depot Beach	Town	18	Tullarwalla	Locality	0
Dolphin Point	Town	211	Twelve Mile Peg	Locality	0
Durras North	Town	42	Ulladulla	Town	6041
East Lynne	Locality	81	Upper Kangaroo River	Locality	98
Endrick	Locality	0	Vincentia	Town	2943
Erowal Bay	Town	552	Wandandian	Town	307

Name	Type	Population	Name	Type	Population
Ettrema	Locality	0	Watersleigh	Locality	38
Falls Creek	Locality	963	Wattamolla	Locality	61
Far Meadow	Locality	210	West Nowra	Locality	1122
Fishermans Paradise	Town	416	Wollumboola	Locality	30
Greenwell Point	Town	1210	Woodburn	Locality	69
Huskisson	Town	736	Woodhill	Locality	83
Hyams Beach	Town	138	Woodstock	Locality	190
Illaroo	Locality	54	Woollamia	Locality	639
Jaspers Brush	Locality	367	Worrigee	Locality	4563
Jerrawangala	Locality	53	Worrowing Heights	Locality	340
Kangaroo Valley	Town	837	Wrights Beach	Town	120
Kinghorne	Locality	0	Yadboro	Locality	9
			Yalwal	Locality	7
			Yatte Yattah	Locality	183
			Yerriyong	Locality	29

## Location and Boundaries in the Shoalhaven area

**Shoalhaven City** is located on the south coast of New South Wales, about 160 kilometres south of Sydney. Shoalhaven City is bounded by the Wingecarribee Shire and the Municipality of Kiama in the north, the Tasman Sea and Jervis Bay Territory in the east, the Eurobodalla Shire in the south and the Queanbeyan Palerang and Goulburn Mulwaree Council areas in the west.

**Bangalee - Cambewarra & Surrounds** is bounded by the localities of Browns Mountain and Beaumont, Cambewarra Lookout Road and Cambewarra Range Nature Reserve in the north, generally by the locality of Meroo Meadow, Pestells Lane, Meroo Road, the locality of Bomaderry, Bells Lane, Moss Vale Road and Bomaderry Creek in the east, the locality of North Nowra and the Shoalhaven River in the south and the localities of Illaroo and Budgong in the west

**Berry & Surrounds** is bounded by the localities of Kangaroo Valley, Wattamolla and Woodhill and Barren Grounds Nature Reserve in the north, the Municipality of Kiama, Broughton Creek and the Tasman Sea in the east, the southern boundary of Seven Mile Beach National Park, the locality of Shoalhaven Heads, the Shoalhaven River and the locality of Bomaderry in the south and Meroo Road, Pestells Lane and the localities of Cambewarra and Browns Mountain in the west.

**Bomaderry** is bounded by the locality of Meroo Meadow in the north, the locality of Bolong and Hanigans Lane in the east, the Shoalhaven River in the south and the Princes Highway, Bomaderry Creek, Bomaderry Creek Regional Park, the locality of North Nowra, Moss Vale Road and Bells Lane in the west.

**Burrill Lake - Lake Tabourie & Surrounds** is bounded by the locality of Ulladulla in the north and north-east, the Tasman Sea in the south-east, Meroo National Park, the Princes Highway and Termeil State Forest in the south, and the locality of Termeil, Meroo National Park, and the localities of Woodburn and Woodstock in the west.

**Callala Bay - Currarong & Surrounds** is bounded by the locality of Worrigee, Currumbene State Forest, Saltwater Swamp Nature Reserve, the Crookhaven River, the locality of Culburra Beach and Lake Wollumboola

in the north, the Tasman Sea in the east, Jervis Bay and Currumbene Creek in the south and Western Road, the locality of Falls Creek, the Princes Highway, Warra Warra Road South and the locality of South Nowra in the west.

**Coastal Mid** is bounded by the localities of Tullarwalla and Sussex Inlet in the north, The Springs Road, Goonawarra Drive, the localities of Cudmirrah and Berrara and the Tasman Sea in the east, Narrawallee Creek, Croobyar Creek and the locality of Little Forest in the south, and the locality of Pointer Mountain, Bunnair Creek, the locality of Twelve Mile Peg, the Princes Highway, Mondayong Road and Wents Road in the west.

**Culburra Beach - Orient Point** is bounded by the Crookhaven River in the north and west, the Tasman Sea in the east and Wollumboola Lake and the locality of Wollumboola in the south

**Greenwell Point - Terara & Surrounds** is bounded by the Shoalhaven River in the north, the Tasman Sea in the east, the Crookhaven River and Saltwater Swamp Nature Reserve in the south and Brundee Swamp Nature Reserve and the localities of Worrigea and Nowra in the west

**Huskisson - Tomerong & Surrounds** is bounded by the localities of Nowra Hill and Comberton and Currumbene Creek in the north, the Tasman Sea in the east, Moona Moona Creek, the localities of Worrowing Heights and St Georges Basin, Grange Road, the locality of Basin View, the Princes Highway and the localities of Bewong and Wandandian in the south and Cottonwood Road, Blackbutt Range Road and the localities of Yerriyong and Parma in the west.

**Milton** is bounded by Croobyar Creek and Narrawallee Creek in the north, the localities of Narrawallee, Mollymook Beach, Mollymook and the Princes Highway in the east, the locality of Ulladulla and Stony Creek in the south, and the localities of Woodstock and Croobyar in the west.

**Mollymook - Narrawallee & Surrounds** is bounded by Narrawallee Creek in the north, the Tasman Sea in the east, the Princes Highway in the south and the locality of Milton in the west.

**North Nowra** is bounded by the locality of Bangalee and Bomaderry Creek in the north, the locality of Bomaderry, Bomaderry Creek and the Princes Highway in the east and the Shoalhaven River in the south and west.

**Nowra** is bounded by the Shoalhaven River in the north, the localities of Terara and Worrigea and Old Southern Road in the east, the locality of South Nowra and Shoalhaven State Forest in the south and Albatross Road, Yalwal Road, the locality of West Nowra and Nowra Creek in the west.

**Sanctuary Point** is bounded by The Wool Road and Tomerong Creek in the north, St Georges Basin in the east and south and The Old Wool Road in the west.

**Shoalhaven Heads** is bounded by Seven Mile Beach National Park in the north, the Tasman Sea in the east, the Shoalhaven River and Comerong Island in the south and the locality of Coolangatta and Bolong Road in the west.

**St Georges Basin - Basin View** is bounded by the Princes Highway and the locality of Tomerong in the north, the locality of Worrowing Heights, The Wool Road and The Wool Lane in the east, St Georges Basin and Wandandian Creek in the south, and the locality of Bewong in the west.

**Sussex Inlet - Cudmirrah & Surrounds** is bounded by the locality of Tullarwalla and the Tullarwalla Inlet in the north, St Georges Basin and the Sussex Inlet in the east, the Tasman Sea and Berrara Creek in the south and the locality of Mondayong in the west.

**Ulladulla** is bounded by the locality of Mollymook and the Princes Highway in the north, the Tasman Sea in the east, the localities of Burrill Lake and Kings Point in the south and Stony Creek and the locality of Milton in the west.

**Vincentia - Erowal Bay & Surrounds** is bounded by the locality of Huskisson and Moona Moona Creek in the north, Jervis Bay in the east, Jervis Bay Territory, the Tasman Sea and Tomerong Creek in the south, and the localities of St Georges Basin and Tomerong in the west.

**West Nowra - South Nowra & Surrounds** is bounded by the Shoalhaven River in the north, Nowra Creek, the locality of Nowra, Shoalhaven State Forest, Worrigee Nature Reserve, Warra Warra Road South and the Princes Highway in the east, the locality of Falls Creek, Currumbene Creek and the locality of Parma in the south and the locality of Yerriyong and Calymea Creek in the west.

**Worrigee** is bounded by the locality of Terara in the north, the locality of Brundee, Brundee Swamp Nature Reserve and the locality of Pyree in the east, Currumbene State Forest and the locality of Comberton in the south and the locality of South Nowra, Old Southern Road and Westbrook Road in the west.

## Landform and Topography

The geology is dominated by Permian age sandstones and siltstones. Older Ordovician age slates and shales make up the basement in the Clyde Valley with volcanic intrusions evident in the north of the City and at Milton and Bawley Point. The area is predominantly hilly or mountainous country to the west with a narrow coastal strip to the east.

Most of the soils of the area are moderately to strongly acid and due to the parent geology most are of poor nutrient status with low water holding capacity. The high nutrient status soils of volcanic origin (eg Milton Monzonite) or alluvial origin (eg Shoalhaven Floodplain) have generally been cleared and represent very good agricultural land. Of course this past clearing of vegetation (much of it rainforest) has had significant impacts on regional wildlife.

Today eucalypt forests and woodlands dominate the area with cleared land being prevalent in the alluvial valleys and in regions closer to the coast. Various specialised flora and fauna have developed in the rainforests, wetlands, coastal sand dunes and heath areas.

## Water Catchments

The Shoalhaven catchment is located in the New South Wales upper south coast and has an area of 7,300 square kilometres. The Shoalhaven River has four main tributaries, the Mongarlowe, Corang, Endrick and Kangaroo Rivers and is highly valued for its wild and scenic attributes. Other tributaries include the Ettrema, Boro, Reedy, Danjera, Yalwal, Broughton, Broughton Mill and Yarrunga Creeks. The Shoalhaven River flows through a large coastal floodplain before entering the Pacific Ocean at Shoalhaven Heads.

The Shoalhaven catchment's largest water storage is Tallowa Dam with a capacity of 110,200 megalitres. Tallowa Dam is part of the Greater Sydney water supply system owned and operated by the WaterNSW. It provides water to Shoalhaven Water for local town water supply and is transferred to Sydney to generate hydro-electric power and supplement Sydney's water supply in times of drought.



Shoalhaven City Council operates several water storages known as Danjera Dam (a tributary of the Shoalhaven River), Bamarang Dam, Flatrock Dam, (a tributary of the Shoalhaven River) Porters Creek Dam (a tributary of the Clyde River) and Cambewarra Dam.

Site	Location	Service Area	Capacity
Tallowa Dam	Mt Scanzi Rd, Kangaroo Valley	WaterNSW (Sydney) & Shoalhaven	110,200 ML
Burrier Pump Station	Burrier Rd, Burrier	Shoalhaven	90 ML/day
Danjera Dam	Yalwal Rd, Yalwal	Shoalhaven	7,600 ML
Bamarang Dam	Yalwal Rd, Bamarang	Shoalhaven	3,800 ML
Porters Creek Dam	Porters Creek Dam Rd, Porters Creek	Southern Shoalhaven	1,900 ML
Flatrock Dam	Yalwal Rd, West Nowra	Nil	570 ML
Cambewarra Dam	Tannery Rd, Cambewarra	Nil	28 ML

## Coastal waterways

The Shoalhaven LGA has a significant number of major rivers and lakes. The most significant is the Shoalhaven River which is the third largest river in New South Wales.

With 165km of open coastline, the Shoalhaven has the longest open coastline of any local government area in NSW. The area also features 40 prominent beaches, eight coastal lakes, 14 significant estuarine systems, 14 major creeks and 11 of the State's 102 Intermittently Closed and Open Lakes and Lagoons (ICOLLs).

Shoalhaven City Council has entrance management policies/plans for the Shoalhaven River entrance at Shoalhaven Heads, Currarong Creek, Swan Lake, Conjola Lake, Burrill Lake and Tabourie Lake.

The upper reaches of the Shoalhaven River catchment contribute to the Shoalhaven's drinking water catchment, flowing into Tallowa Dam. Lake Yarrunga is formed by Tallowa Dam, which is constructed immediately downstream of the confluence of the Kangaroo River and the Shoalhaven River. Tallowa Dam has a capacity of 110,200 megalitres and is the largest water storage in Shoalhaven River catchment. Aside from the Tallowa Dam system, which includes Fitzroy Falls Dam, there are no large water storages in the catchment.

Major catchments including their main tributaries are tabulated below.

<b>Shoalhaven LGA Waterways</b>
<b>Rivers and lakes, main tributaries and major creeks</b>
<b>Shoalhaven River:</b> Mongarlowe, Corang, Endrick, Crookhaven and Kangaroo Rivers. Nowra, Browns, Bomaderry, Ettrema, Boro, Reedy, Danjerra, Yalwal, Broughton, Broughton Mill and Yarrunga Creeks.
<b>Kangaroo River (major tributary of Shoalhaven River):</b> Barrengarry Creek, Mytrke Trubutaries, Town Tributaries, Jarrett's Lane Creek, Nugents Creek
<b>Broughton Creek (tributary of the Shoalhaven River):</b> Broughton Mill Creek, Bundewallah Creek, Connollys Creek, Town Creek, Anderson Lane Creek, Anderson Lane Tributary, Hitchcock's Lane Creek and Hitchcock's Lane Tributary.
<b>Bomaderry Creek (tributary of the Shoalhaven River):</b> Good Dog Creek, Browns Creek and Tapitallee Creek.
<b>Lake Wollumboola:</b> Coonemia Creek, Irrayadda Creek, Woolong Creek, Downs Creek, Wallte Corner Creek and Sheepwash Creek
<b>Currambene Creek:</b> Parma Creek and Georges Creek.
<b>Moona Moona Creek:</b> Duck Creek
<b>St Georges Basin:</b> Cow Creek, Tullarwalla Creek, Pats Creek, Home Creek, Tomerong Creek (also referred to as Cockrow Creek), Worrowing Waterway, Erowal Creek, Stony Creek and Sussex Inlet Creek.
<b>Coastal Waterways</b>
<b>Conjola Lake:</b> Luncheon Creek, Conjola Creek, Gooloo Creek and Bunnair Creek.
<b>Burrill Lake:</b> Stony Creek
<b>Tabourie Lake:</b> Branderee Creek, Lemon Tree Creek, Lucy Kings Creek and Munno Creek.
<b>Other Coastal Waterways</b>
Swan Lake, Termeil Lake, Meroo Lake, Willinga Lake and Durras Lake
<b>Other Creeks</b>
Callala Creek, Currarong Creek, Nerrindillah Creek, Washarwomans Creek, Berrara Creek, Narrawallee Inlet, Mollymoke Farm Creek, Blackwater Creek, Millards Creek and Racecourse Creek.
<b>Dams</b>
Tallowa Dam and Fitzroy Falls Dam

## National Parks, Nature Reserves & State Forests

Total parks and reserves covers 229,928 hectares within the Shoalhaven LGA. Note some reserves extend into adjoining LGAs but the attached figures only apply within the Shoalhaven LGA. Marine Parks are no longer managed by NPWS. Booderee NP is managed by Parks Australia and covers an area of 63.12km<sup>2</sup>.

Name	Size - Hectares	Name	Size - Hectares
Bamarang NR	374	Meroo NP	3846
Barren Grounds NR	976	Morton NP	155557
Barrengarry NR	21	Morton SCA	1028
Belowla Island NR	7	Murramarang AA	60
Bimberamala NP	4420	Murramarang NP	8639
Bomaderry Creek RP	85	Narrawallee Creek NR	872
Brush Island NR	37	Nowra	1
Brundee Swamp	227	Parma Creek NR	3643
Budawang NP	19078	Rodway NR	85
Budderoo NP	1880	Saltwater Swamp NR	214
Bugong NP	1011	Seven Mile Beach NP	853
Cambewarra Range NR	1681	Tapitallee NR	94
Colymea SCA	1674	Triplarina NR	94
Comerong Island NR	714	Ulladulla	0
Conjola NP	11603	Wogamia NR	275
Corramy RP	291	Woollamia NR	453
Cullunghutti AA	66	Worrigea NR	615
Jerrawangala NP	4031	Yatheyattah NR	35
Jervis Bay NP	5269	Jervis Bay Marine Park	16006
Kangaroo River NR	5269	Bateman Marine Park	11506

## State Forests

South of the Shoalhaven River, there are significant areas of State Forest and farmland used for forestry purposes. Many sawmills operate along the coastal areas providing employment for sawmill operators and forestry harvesting.

State Forests are available for recreational purposes and many are located in the Shoalhaven.

Name	Size – Hectares
Boyne	4
Clyde	3737
Currambene	1594
Currowan	5623
Flat Rock	5231
Jerrawangala	195
Kioloa	174
McDonald	3755
North Brooman	3106
Nowra	638
Shallow Crossing	3721
Shoalhaven	105
South Brooman	5868
Termeil	699
Tomerong	213
Woodburn	10
Yadboro	10755
Yerriyong	6635

## Climate

Temperatures are generally mild with average temperatures of 15.5°C and 26.5°C for June and January respectively. Rainfall is more pronounced during the summer/autumn months, with the least rainfall occurring in July, August and September. The average annual rainfall is 1110mm and 1270mm for Nowra and Milton respectively.

The bush fire season generally runs between September and March each year. Prevailing weather conditions associated with the bush fire season in the Shoalhaven BFMC area are North-westerly winds accompanied by high daytime temperatures and low relative humidity. There are also frequently dry lightning storms occurring during the bush fire season.

Climate Statistics and Historical Weather Observations					
		Nowra RAN Air Station (1955 – 2000)	Nowra RAN Air Station AWS (2000-2015)	Point Perpendicular AWS (2001 – 2015)	Point Perpendicular Lighthouse Comparison (Jervis Bay 1899 – 2004)
Temperature (oC)	Annual Mean Maximum	21.3	22.2	20.6	19.9
	Annual Mean Minimum	11.3	11.5	14.2	13.7
	Monthly Mean Maximum	25.8 (Jan/Feb)	27.5 (Jan)	24.9 (Jan)	23.9 (Feb)
	Monthly Mean Minimum	6.2 (Jul)	6.6 (Jul)	9.8 (Jul)	9.2 (Jul)
	Highest Temperature	44.2 (1 Feb 1968)	45.4 (18 Jan 2013)	42.1 (1 Jan 2006)	40.6 (26 Jan 1960)
	Lowest Temperature	-0.8 (11 Jul 1971)	-0.9 (24 Aug 2002)	4.7 (13 Aug 2005)	-0.5 (17 Jun 1976)
Rainfall (mm)	Annual Mean Total	1112.1	922.9	1226.9	1241.8
	Highest Annual	2053.4	1291.6	1769.6	2493.6
	Lowest Annual	463.1	587.4	860.6	585.9
	Highest Month	815.3 (Oct 1959)	431.6 (Aug 2015)	427.6 (Jun 2013)	667.1 (Nov 1961)
	Highest Daily	245.9 (29 Apr 1963)	208.0 (26 Aug 2015)	178.8 (29 Jan 2013)	316.7 (20 Mar 1961)
Wind (km/h)	Annual Mean 9am wind speed	11.7	14.3	No data	15.8
	Mean Highest 9am wind speed	15.5 (Jul)	18.1 (Aug)	No data	19.1 (Jun)
	Mean Lowest 9am wind speed	7.8 (Feb)	11.5 (Jan)	No data	13.5 (Mar)
	Annual Mean 3pm wind speed	17.5	22.0	No data	20.0
	Mean Highest 3pm wind speed	20.5 (Sep)	22.9 (Sep)	No data	22.5 (Nov)
	Mean Lowest 3pm wind speed	14.2 (May)	16.7 (May/Jun)	No data	17.9 (Apr/May)

## Land Use

Shoalhaven City is a regional and growing residential and tourist area, it is the most visited LGA in NSW outside of Sydney. The City encompasses a total land area of about 4,561 square kilometres, including substantial areas of national park, state forest, bushland, beaches and lakes.

Most of the population is concentrated along the coastal fringe, in major centres and numerous small settlements. The major centres are Nowra-Bomaderry, Milton-Ulladulla, Huskisson-Vincentia, St Georges Basin District, Culburra Beach and Sussex Inlet.

Rural land is used mainly for dairy farming, beef cattle, nurseries, and a growing number of more intensive agricultural activities. The area has a strong light manufacturing industrial base including goods such as starches, ethanol, cheese, boats, avionics, building products, surfboard and surf-wear. The main sectors of employment within the Shoalhaven are Manufacturing, Government (including Defence), Retail and Tourism. These sectors are supported by Building and Construction, Community Services and Education.

Shoalhaven Land Use Zones			
	Land Use Zone	Land Area (km <sup>2</sup> )	% of LGA
Rural Zones	RU1 Primary Production	325.97	7.15
	RU2 Rural Landscape	548.57	12.04
	RU3 Forestry	519.67	11.40
	RU4 Primary Production Small Lots	22.41	0.49
	RU5 Village	5.53	0.12
Residential Zones	R1 General Residential	15.74	0.35
	R2 Low Density Residential	43.77	0.96
	R3 Medium Density Residential	2.38	0.05
	R5 Large Lot Residential	25.65	0.56
Business Zones	B1 Neighbourhood Centre	0.19	0.00
	B2 Local Centre	0.62	0.01
	B3 Commercial Core	0.46	0.01
	B4 Mixed Use	1.64	0.04
	B5 Business Development	1.59	0.03
	B7 Business Park	0.49	0.01
Industrial Zones	IN1 General Industrial	5.83	0.13
	IN2 Light Industrial	0.78	0.02
	IN4 Working Waterfront	0.03	0.00
Special Purpose Zones	SP1 Special Activities	44.17	0.97
	SP2 Infrastructure	45.24	0.99
	SP3 Tourist	2.04	0.04
Recreation Zones	RE1 Public Recreation	25.68	0.56
	RE2 Private Recreation	2.57	0.06
Environment Protection Zones	E1 National Parks and Nature Reserves	2314.03	50.77
	E2 Environmental Conservation	250.72	5.50
	E3 Environmental Management	242.96	5.33
	E4 Environmental Living	5.80	0.13
Waterway Zones	W1 Natural Waterways	25.48	0.56
	W2 Recreational Waterways	58.61	1.29
	W3 Working Waterways	0.13	0.00
Other	DM Deferred Matters	17.97	0.39
	JE Shoalhaven LEP (Jerberra Estate) 2014	0.79	0.02
Total		4557.50	100.00

## Population and People

The Estimated Resident Population as at 2016 is 101,777 with a population density of 0.22 persons per hectare.

Shoalhaven City – Total Persons (Usual Residence)						
	Shoalhaven LGA		Nowra Bomaderry Structure Plan Area		Ulladulla	
Five year age groups (years)	Number	%	Number	%	Number	%
0 to 4	5,122	5.1	2,233	6.4	321	4.8
5 to 9	5,659	5.7	2,300	6.6	354	5.3
10 to 14	5,534	5.6	2,109	6.0	378	5.7
15 to 19	5,309	5.3	2,117	6.1	362	5.4
20 to 24	4,622	4.6	2,282	6.5	260	3.9
25 to 29	4,579	4.6	2,246	6.4	240	3.6
30 to 34	4,736	4.8	2,149	6.2	260	3.9
35 to 39	4,710	4.7	1,962	5.6	291	4.4
40 to 44	5,381	5.4	2,010	5.8	354	5.3
45 to 49	5,791	5.8	2,151	6.2	383	5.8
50 to 54	6,507	6.5	2,057	5.9	437	6.6
55 to 59	7,560	7.6	2,285	6.5	469	7.0
60 to 64	7,786	7.8	2,210	6.3	520	7.8
65 to 69	8,375	8.4	2,172	6.2	597	9.0
70 to 74	6,603	6.6	1,631	4.7	499	7.5
75 to 79	4,907	4.9	1,226	3.5	394	5.9
80 to 84	3,302	3.3	883	2.5	299	4.5
85 and over	3,160	3.2	896	2.6	237	3.6
<b>Total population</b>	<b>99,643</b>	<b>100.0</b>	<b>34,930</b>	<b>100.0</b>	<b>6,655</b>	<b>100.0</b>

*Source: Australian Bureau of Statistics Census of Population and Housing 2016. Compiled and presented by .id the population experts.*

Between 2011 and 2036 the population for Shoalhaven is forecast to increase by 23,211 persons.

However tourism has a significant impact on population. Tourism is the Shoalhaven's sixth largest employing industry. The peak tourist period coincides with summer and during this time the Shoalhaven population can triple. The Shoalhaven contains 49 towns and villages; many of which experience large influxes of tourists over the summer months.

The following residents and households are identified as being more vulnerable to emergency events, due to their circumstances. Some of the vulnerabilities identified could impact emergency operations, communications, evacuation management and response and recovery requirements.

Communities defined by 2016 Census	Land Area (km2)	Total Population (Usual Resident Population)	Residents				Households					
			0-19		Over 65		Need Assistance		Sole Occupant		Without Vehicle	
			No.	%	No.	%	No.	%	No.	%	No.	%
Bangalee - Cambewarra and Surrounds	50	2960	778	26.3	523	17.7	99	3.3	132	12.7	2	0.2
Berry and Surrounds	215	4506	807	17.9	1492	33.1	315	7.0	375	21.3	46	2.5
Bomaderry	8	6665	1457	21.9	1604	24.1	564	8.5	903	32.2	217	7.6
Burrill Lake - Lake Tabourie and Surrounds	13	2872	604	21.0	746	26.0	192	6.7	315	26.0	33	2.7
Callala Bay - Currarong and Surrounds	167	3622	719	19.9	1012	27.9	228	6.3	355	23.9	39	2.7
Coastal Mid	191	2304	384	16.7	688	29.9	133	5.8	278	26.4	16	1.5
Coastal South	256	1833	369	20.1	458	25.0	87	4.7	184	23.7	3	0.4
Culburra Beach - Orient Point	15	3481	668	19.2	1086	31.2	295	8.5	440	29.7	76	5.1
Greenwell Point - Terara and Surrounds	78	1811	284	15.7	561	31.0	120	6.6	254	31.2	38	4.6
Huskisson - Tomerong and Surrounds	111	3347	675	20.2	755	22.6	203	6.1	302	22.5	50	3.6
Milton	16	1662	333	20.0	582	35.0	209	12.6	165	27.9	16	2.6
Mollymook - Narrawallee and Surrounds	9	4778	863	18.1	1560	32.6	252	5.3	573	27.1	73	3.4
North Nowra	10	5806	1465	25.2	1211	20.9	467	8.0	542	24.9	100	4.5
Nowra	9	9130	2186	23.9	2165	23.7	1056	11.6	1329	34.6	479	12.2
Rural Balance	3164	2704	570	21.1	673	24.9	98	3.6	193	18.8	1	0.1
Sanctuary Point	6	7234	1645	22.7	1976	27.3	686	9.5	848	28.2	118	3.9
Shoalhaven Heads	4	3066	518	16.9	1088	35.5	193	6.3	516	34.4	78	5.3
St Georges Basin - Basin View	16	4476	1001	22.4	1252	28.0	384	8.6	427	25.5	57	3.2
Sussex Inlet - Cudmirrah and Surrounds	40	4331	633	14.6	1751	40.4	460	10.6	632	32.3	109	5.4
Ulladulla	14	6609	1415	21.4	2026	30.7	498	7.5	869	30.1	173	6.0
Vincentia - Erowal Bay and Surrounds	37	5733	1141	19.9	1791	31.2	416	7.3	679	27.7	79	3.2
West Nowra - South Nowra and Surrounds	86	5713	1331	23.3	712	12.5	306	5.4	307	19.1	41	2.4
Worrigea	17	5067	1643	32.4	649	12.8	322	6.4	275	16.1	41	2.4

Source: Australian Bureau of Statistics, Census of Population and Housing 2016. Compiled and presented by .id the population experts.





## Transport Routes and Facilities

### Road Network

The Shoalhaven LGA is located on the South Coast of NSW approximately 2 hours south of Sydney. The main road is the Princes Highway running north to south, from Berry to Termeil. There are two major east-west links. These are the Braidwood Road (Main Road 92) from Tomerong to Nerriga and Moss Vale Road, from Bomaderry, through Kangaroo Valley, to Fitzroy Falls. The major rail link from Sydney stops north of the Shoalhaven River at Bomaderry. Shoalhaven experiences impacts on its transportation systems during peak periods such as Christmas and Easter holidays mainly because of the huge influx of tourists.

Scheduled interstate bus services use both the Princes Highway and Moss Vale Road in the Shoalhaven.

Road Name	RMS_Number	Classification	Direction	Links	Length (Metres)
MOSS VALE RD	MR 261	Classified State Road	North South	Southern Highlands with Princes HWY @ Bomaderry	30,445.58
NAVAL COLLEGE RD	7634	Unclassified Regional Road	East West	Huskisson Rd to JBT Boundary	11,530.36
PRINCES HWY (north of Shoalhaven River)	HWY1	Classified State Road	North South	Nowra bridge north to SCC boundary near Fox Ground	21,972.54
ISLAND POINT RD	7631	Unclassified Regional Road	North South	HWY to Vincentia	1,121.38
JERVIS BAY RD	MR 312	Classified Regional Road	North South	Princes HWY to Huskisson Road	7,491.87
PARADISE BEACH RD	7631	Unclassified Regional Road	East West	HWY to Vincentia	1,131.78
PRINCES HWY (south of Shoalhaven River)	HWY1	Classified State Road	North South	Nowra Bridge South to SCC Border	107,030.81
THE WOOL RD	7631	Unclassified Regional Road	East West	HWY to Vincentia	9,171.78
ALBATROSS RD	MR 92	Classified Regional Road	East West	Kinghorne roundabout to Albatross	6,985.20
WALMER AVE	7631	Unclassified Regional Road	East West	HWY to Vincentia	907.64
KALANDAR ST	7632	Unclassified Regional Road	East West	Links Nowra with Greenwell Point	1,254.34
GERROA RD	7643	Unclassified Regional Road	East West	Coolangatta road to SCC boundary before Gerroa	7,135.81
CULBURRA RD	7632	Unclassified Regional Road	East West	Links Nowra with Greenwell Point	8,401.36
GREENWELL POINT RD	7632	Unclassified Regional Road	East West	Links Nowra with Greenwell Point	7,808.10
PYREE LANE	7632	Unclassified Regional Road	East West	Links Nowra with Greenwell Point	1,643.33
LORALYN AVE	7631	Unclassified Regional Road	East West	HWY to Vincentia	1,934.25

Road Name	RMS_Number	Classification	Direction	Links	Length (Metres)
TASMAN RD	7631	Unclassified Regional Road	East West	HWY to Vincentia	621.11
BOLONG RD	MR 293	Classified Regional Road	East West	Princes HWY to Shoalhaven Heads	13,879.72
SUSSEX INLET RD (Rural)	7633	Unclassified Regional Road	East West	Princes Hwy to Sussex Inlet	10,937.58
BRAIDWOOD RD	MR 92	Classified Regional Road	East West	Nowra to Braidwood	56,259.47
LARMER AVE	7631	Unclassified Regional Road	East West	HWY to Vincentia	1,248.28
BOLONG RD	MR 293	Unclassified Regional Road	East West	Shoalhaven Heads to Coolangatta Rd	933.21

### Airports

The Shoalhaven has no official airport however the aerodrome at HMAS Albatross Navy air base provides restricted facilities for commercial air services.

### Ports & Harbours

The Shoalhaven has one official Harbour – Ulladulla Harbour has always been the home of commercial fishermen. There are no Ports within the Shoalhaven

## Economy and Industry

The Shoalhaven has a mature but growing economic base. With broad diversity in many value adding sectors such as aircraft maintenance and overhaul, general manufacturing and logistics, the economic base is supported by domestic and international trade. Government administration and services including three Defence sites are strong as is education, health and the construction industry. Many localities are also highly oriented to tourism and retail.

Population growth, based on in-migration from metropolitan areas, continues to grow the labour force and provide extension to existing and new businesses. A skilled workforce supports the business base and utilises the resources of local training facilities of the University of Wollongong and TAFE NSW.

Shoalhaven Sectors of Employment		
Industry Sector of Employment	Number of Employees	% of Workforce
Health Care & Social Assistance	4,501	15.66%
Retail Trade	4,116	14.32%
Public Administration & Safety	3,138	10.92%
Accommodation & Food Services	2,919	10.15%
Education & Training	2,423	8.43%
Manufacturing	2,344	8.15%
Construction	1,882	6.55%
Professional, Scientific & Technical Services	1,333	4.64%
Other Services	1,073	3.73%
Transport, Postal & Warehousing	927	3.22%

Shoalhaven Sectors of Employment		
Industry Sector of Employment	Number of Employees	% of Workforce
Administrative & Support Services	751	2.61%
Agriculture, Forestry & Fishing	575	2.00%
Rental, Hiring & Real Estate Services	557	1.94%
Wholesale Trade	556	1.93%
Arts & Recreation Services	530	1.84%
Financial & Insurance Services	483	1.68%
Electricity, Gas, Water & Waste Services	323	1.12%
Information Media & Telecommunications	280	0.97%
Mining	37	0.13%
Defence – ADF, APS and Supporting Contractors	2400	

Source: REMPLAN data incorporating Australian Bureau of Statistics' (ABS) June 2014 Gross State Product, 2012 / 2013 National Input Output Tables and 2011 Census Place of Work Employment Data

## Annexure B – Hazards and Risks Summary

A Local Emergency Risk Management (ERM) Study has been undertaken by the Shoalhaven Local Emergency Management Committee identifying the following hazards as having risk of causing loss of life, property, utilities, services and/or the community's ability to function within its normal capacity. These hazards have been identified as having the potential to create an emergency. The Shoalhaven Emergency Risk Management Study should be referenced to identify the complete list of consequences and risk descriptions.

Hazard	Risk Description	Likelihood Rating	Consequence Rating	Risk Priority	Combat / Responsible Agency
<b>Communicable Disease (Human/Animal)</b>	Pandemic illness that affects, or has potential to affect, large portions of the human or animal population	Possible	Major	Extreme	Department of Health
<b>Agricultural Disease (Animal/Animal)</b>	An agriculture/horticulture incident that results, or has potential to result, in the spread of a communicable disease or infestation.	Unlikely	Major	High	Department of Primary Industries
<b>Storm</b>	Severe storm with accompanying lightning, hail, wind, and/or rain that causes severe damage and/or localised flooding.(includes tornado)	Almost Certain	Major	Extreme	NSW SES
<b>Fire (Bush or Grass)</b>	Major fires in areas of bush or grasslands.	Almost Certain	Major	Extreme	NSW RFS FRNSW
<b>Utilities Failure</b>	Major failure of essential utility for unreasonable periods of time as a result of a natural or man-made occurrence.	Possible	Moderate	High	LEOCON
<b>Flood (Riverine)</b>	River flows exceed the capacity of normal river systems resulting in flood waters escaping and inundating river plains	Almost Certain	Major	Extreme	NSW SES
<b>Earthquake</b>	Earthquake of significant strength that results in localised or widespread damage.	Rare	Major	High	LEOCON
<b>Tsunami</b>	A tsunami wave of magnitude that presents a risk to land and marine elements.	Unlikely	Major	High	NSW SES
<b>Flood (Flash)</b>	Heavy rainfall causes excessive localised flooding with minimal warning time	Almost Certain	Minor	High	NSW SES

Hazard	Risk Description	Likelihood Rating	Consequence Rating	Risk Priority	Combat / Responsible Agency
<b>Bridge Collapse</b>	Failure of a major bridge structure with or without warning owing to structural failure or as a result of external/ internal events or other hazards/ incidents.	Unlikely	Moderate	Medium	LEOCON
<b>Building Collapse</b>	Collapse of building owing to structural failure or impact from external/internal event of other hazards /incidents.	Unlikely	Moderate	Medium	FRNSW (USAR) LEOCON
<b>Dam Failure</b>	A dam is compromised that results in localised or widespread flooding.	Unlikely	Minor	Low	Dam Owners NSW SES
<b>Fire (Industrial)</b>	Serious industrial fire in office complexes and/or warehouses within industrial estates.	Possible	Minor	Medium	FRNSW NSW RFS
<b>Fire (Commercial)</b>	Serious commercial fires in shopping centres, aged persons units, nursing homes and hospitals.	Possible	Minor	Medium	FRNSW NSW RFS
<b>Fire (Residential)</b>	Serious residential fire in medium/high rise apartments.	Possible	Minor	Medium	FRNSW NSW RFS
<b>Hazardous Release</b>	Hazardous material released as a result of an incident or accident.	Possible	Minor	Medium	FRNSW
<b>Landslip</b>	Landslip/landslide resulting in localised or widespread damage.	Possible	Minor	Medium	LEOCON
<b>Transport Emergency - Air</b>	Aircraft crashes in LGA resulting in large number of fatalities, injuries and/or damage to property.	Rare	Major	High	LEOCON
<b>Transport Emergency - Rail</b>	A major rail accident that disrupts transport routes that can result in risk to people, restrict supply routes and/or protracted loss of access to or from the area.	Rare	Moderate	Medium	LEOCON
<b>Transport Emergency - Road</b>	A major vehicle accident that disrupts one or more major transport routes that can result in risk to people trapped in traffic jams, restrict supply routes and/or protracted loss of access to or from the area.	Possible	Minor	Medium	LEOCON

Hazard	Risk Description	Likelihood Rating	Consequence Rating	Risk Priority	Combat / Responsible Agency
<b>Transport Emergency - Sea</b>	A major accident that results in environmental damage and major recovery operation	Unlikely	Moderate	Medium	Relevant Port / Maritime/Marine Rescue

### Risk Evaluation Criteria – Information from Shoalhaven Emergency Risk Management Report 2011

Likelihood Scale	
Descriptor	Description
Almost Certain	Is expected to occur in most circumstances; and/or high level of recorded incidents; and/or strong anecdotal evidence; and/or a strong likelihood the event will recur; and/or great opportunity, reason or means to occur. May occur once a year or more frequently
Likely	Will occur in most circumstances; and/or regular recorded incidents and strong anecdotal evidence; and/or considerable opportunity, reason or means to occur. May occur once every 5 years
Possible	Might occur at some time; and/or few, infrequent, random recorded incident or little anecdotal evidence; and/or every few incidents in associated or comparable organisations, facilities or communities; and/or some opportunity, reason or means to occur. May occur once every 20 years.
Unlikely	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or no recent incidents in associated organisations, facilities or communities; and/or little opportunity, reason or means to occur. May occur once every 100 years
Rare	May occur only in exceptional circumstances May occur once every 500 + years.

Consequence Descriptors		
	Human Life and Health	Property, Financial and Environmental
Catastrophic	<ul style="list-style-type: none"> <li>• Significant fatalities</li> <li>• Large number of severe injuries</li> <li>• Extended and large numbers requiring hospitalisation</li> <li>• General and widespread displacement for extended duration</li> </ul>	<ul style="list-style-type: none"> <li>• Extensive damage</li> <li>• Extensive personal support</li> <li>• Community unable to function without significant support</li> <li>• Significant impact on the environment and/or permanent damage</li> </ul>
Major	<ul style="list-style-type: none"> <li>• Fatalities</li> <li>• Extensive injuries and significant hospitalisation</li> <li>• Large numbers displaced (more than 24 hours duration)</li> <li>• External resources required for personal support</li> </ul>	<ul style="list-style-type: none"> <li>• Significant damage that requires external resources. Community only partially functioning with some services unavailable.</li> <li>• Some impact on the environment with long term effects</li> <li>• Significant financial loss – some financial assistance required.</li> </ul>
Moderate	<ul style="list-style-type: none"> <li>• Medical treatment required but no fatalities</li> <li>• Localised displacement of people who return within 24 hours</li> <li>• Personal support satisfied through local arrangements</li> </ul>	<ul style="list-style-type: none"> <li>• Localised damage that is rectified through local arrangements. Normal community functioning with some inconvenience.</li> <li>• Some impact on the environment with no long-term effects or small impact on the environment with long term effect</li> <li>• Significant financial loss</li> </ul>
Minor	<ul style="list-style-type: none"> <li>• Small number of injuries and no fatalities. First aid treatments required.</li> <li>• Some displaced people (less than 24 hours)</li> <li>• Some personal support required</li> <li>• Some community disruption (less than 24 hours)</li> </ul>	<ul style="list-style-type: none"> <li>• Some damage</li> <li>• Small impact on the environment with no lasting affects</li> <li>• Some financial loss</li> </ul>



Insignificant	<ul style="list-style-type: none"> <li>No injuries or fatalities</li> <li>Small number or no people are displaced for a small period of time</li> <li>Little or no personal support required (support not monetary or material)</li> </ul>	<ul style="list-style-type: none"> <li>Inconsequential or no damage</li> <li>Little or no disruption to the community</li> <li>No measurable impact on the environment</li> <li>Little or no financial loss</li> </ul>
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Risk Matrix						
		CONSEQUENCES				
		1 - Insignificant	2 – Minor	3 – Moderate	4 - Major	5 - Catastrophic
LIKELIHOOD	A - Almost Certain	H	H	E	E	E
	B - Likely	M	H	H	E	E
	C -Possible	L	M	H	E	E
	D -Unlikely	L	L	M	H	E
	E -Rare	L	L	M	H	H
		E = Extreme	H = High	M = Medium	L = Low	

## Annexure C – Local Sub Plans, Supporting Plans and Policies

Responsibility for the preparation and maintenance of appropriate sub and supporting plans rest with the relevant Combat Agency Controller or the relevant Functional Area Coordinator.

The sub/supporting plans are developed in consultation with the Shoalhaven LEMC and the community.

The plans listed below are supplementary to this EMPLAN. The sub/supporting plans have been endorsed by the LEMC and are determined as compliant and complimentary to the arrangements listed in this EMPLAN.

These plans are retained by the LEMO on behalf of the LEMC.

Plan/Policy	Purpose	Combat / Responsible Agency
Shoalhaven Section 52 Plan of Operations	This Policy describes the method and standard for preparing plans which are to be known as Operations Coordination Plans and provides a range of supporting resources to assist BFMCs and agencies in achieving the goal of efficient and coordinated fire fighting.	NSW Rural Fire Service
Shoalhaven Local Bushfire Risk Management Study	To minimise the risk of adverse impact of bush fires on life, property and the environment	NSW Rural Fire Service
Shoalhaven Local Flood Plan 2014	Preparedness measures, the conduct of response operations and the coordination of immediate recovery measures from flooding. Covers operations for all levels of flooding and arrangements for the management of coastal erosion in the Shoalhaven LGA	NSW State Emergency Service
Engineering Services Plan	This plan details arrangements for the provision and coordination of Engineering Services during response to and recovery from incidents and emergencies in the Shoalhaven	Shoalhaven City Council – Engineering

Plan/Policy	Purpose	Combat / Responsible Agency
Communications Services Plan	This plan details arrangements for the provision and coordination of Communications including mobile towers and radio infrastructure during response to and recovery from incidents and emergencies in the Shoalhaven	Shoalhaven City Council – Communications
Transport Services Supporting Plan	This plan details arrangements for the provision and coordination of Transport Services during response to and recovery from incidents and emergencies in the Shoalhaven	Shoalhaven City Council – Transport
Welfare Services Supporting Plan	This plan details arrangements for the provision and coordination of Welfare Services and supporting agencies during response to and recovery from incidents and emergencies in the Shoalhaven	Welfare Services
HMAS Albatross Aerodrome Emergency Plan	This plan details arrangements for the provision and coordination of a Defence response to and recovery from aircraft incidents and emergencies at HMAS Albatross and the Shoalhaven Area	Defence Estate and Infrastructure Group
HMAS Albatross Aerodrome Emergency Plan	Details arrangements for the response to and recovery from non aircraft related emergencies	Defence Estate and Infrastructure Group
Shoalhaven Emergency Operations Centre Standard Operating Procedures	To facilitate the full or partial activation of the Emergency Operations Centre in support of the LEOCON and in accordance with the NSW Emergency Operations Centre Policy	Shoalhaven City Council - LEMO