



# Understanding Coastal Erosion in NSW - Protecting Clients in Property Transactions.

# Introduction

*“Sea level rise, combined with potentially more extreme climate episodes such as cyclones or storms will only increase coastal risk in Australia”.*



## IPCC – Intergovernmental Panel on Climate Change – 2021

Australia is one of the most vulnerable countries in the world to climate change – whether from storm damage, rising sea levels, river and coastal flooding. The country is especially exposed to extremes from the switching of the El Nino and La Nina ocean currents. We are entering a warming El Nino which is already starting to have global effects on overall average temperatures, but specific to Australia could lead to a greater incidence of storms and sea surges, thereby accelerating coastal erosion. This warming trend is only going one way.

## What is Coastal erosion?

Coastal erosion (or shoreline retreat) is the loss of coastal lands due to the net removal of sediments or bedrock from the shoreline. We assume that sea-level rise happens slowly, but there is a more imminent risk of sudden elevation from short-term extreme storm surge and flooding, as well as tsunamis. This tends to have a greater intensity as the surge or tsunami inundation can allow waves and currents to attack landforms which are normally out of their reach.

Slower-onset hazards (occurring over many years, or decades) are usually driven by the action of waves and currents, but can also result from erosive processes on slopes, and land subsidence. On coastal headlands, this can lead to undercutting of cliffs and steep slopes. Heavy rainfall can also saturate the soil, leading to an increase in the chance of slope failure (landslides).

Human activity can also strongly influence the likelihood of erosion. Building breakwaters, groynes and seawalls can lead to changes in how sediments move along the coast, resulting in erosion in some areas and growth of sandbars and spits in others. Dredging can also accelerate these processes. Climate change is adding a further accelerant at the larger scale.

The most vulnerable coasts are beaches, dunes and sand cliffs, open coasts that experience longshore drift of sediment and shores of coastal lakes and lagoons. Australia has some 30,000 kilometres of dynamic coastline at the mercy of rising sea levels and warming ocean currents bringing increasingly more frequent storms.



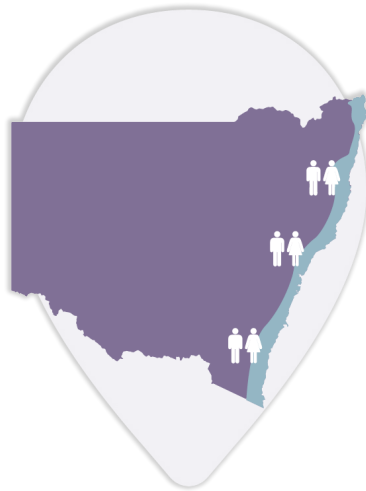
# Understanding the scale of coastal erosion risk

This is accelerating erosion damage along attractive and expensive real estate, with the prospect of total loss in value in the most exposed and undefended locations.



**\$25 Billion**

worth of property assets  
at risk from coastal  
erosion\*



**35%**

of NSW lots are within  
10km of the coastline\*



**48%**

of beaches experienced  
erosion during La Nina  
years between 1989  
and 2022\*

Around the Australian coast, nearly 39 000 buildings are located within one hundred metres of 'soft' shorelines and are at risk from accelerated erosion due to sea-level rise and changing climate conditions (as at 2011).

The NSW coast has a long history of experiencing coastal erosion events dating back to 1857. Single storm events have caused coastal erosion, such as that associated with East Coast Low storms in 2015 and 2016 that damaged beachfront properties in Sydney. A series of large storm events in 1974 led to even more extensive damage to coastal properties and infrastructure in this region.



**900,000**

properties identified at  
some level of coastal  
erosion risk\*

# Top 20 NSW suburbs at risk from coastal erosion

			Today Risk		30 Year Risk				
30 Year Rank	Suburb	Count of Lots	Count of Lots with Very High Assessment	Percentage of Lots with Very High Assessment	Count of Lots with Very High Assessment	Percentage of Lots with Very High Assessment	Today Rank	30 Year Rank	Change in Rank
1	Cronulla	3183	148	4.65%	184	5.78%	2	1	▲ 1
2	Port Stephens	262	150	57.25%	171	65.27%	1	2	▼ -1
3	Stockton	1806	79	4.37%	161	8.91%	6	3	▲ 3
4	Palm Beach	1517	126	8.31%	146	9.62%	3	4	▼ -1
5	Yamba	3222	86	2.67%	146	4.53%	5	4	▲ 1
6	Port Macquarie	17063	71	0.42%	121	0.71%	8	6	▲ 2
7	Pindimar	943	90	9.54%	119	12.62%	4	7	▼ -3
8	Byron Bay	2826	47	1.66%	105	3.72%	11	8	▲ 3
9	North Arm Cove	3969	37	0.93%	101	2.54%	19	9	▲ 10
10	Vaucluse	2610	74	2.84%	94	3.60%	7	10	▼ -3
11	Old Bar	2263	23	1.02%	83	3.67%	38	11	▲ 27
12	Batemans Bay	1042	34	3.26%	80	7.68%	21	12	▲ 9
13	Sandringham	355	23	6.48%	75	21.13%	38	13	▲ 25
14	Corlette	2465	33	1.34%	73	2.96%	23	14	▲ 9
15	Burraneer	1171	65	5.55%	72	6.15%	9	15	▼ -6
16	North Batemans Bay	355	56	15.77%	69	19.44%	10	16	▼ -6
17	Swansea	2102	44	2.09%	69	3.28%	13	16	▼ -3
18	North Shore	309	23	7.44%	69	22.33%	38	16	▲ 22
19	Wamberal	2554	1	0.04%	65	2.55%	278	19	▲ 259
20	Booker Bay	534	34	6.37%	64	11.99%	21	20	▲ 1

# Top 20 NSW suburbs at risk from coastal erosion *(continued)*

The Hunter's Port Stephens, Sutherland Shire's Cronulla, Northern Beaches' Palm Beach, and the Northern Rivers' Yamba all make the top five for locations most impacted by coastal erosion now and in the future, according to Groundsure ClimateIndex™ reports.

Some of the country's most expensive real estate in eastern Sydney's Vaucluse and the North Coast's Byron Bay is also at risk. Eight locations aren't in the firing line now but are deemed to be among the State's most at-risk addresses within three decades, including Wamberal, Old Bar, Batemans Bay, Sandringham, North Arm Cove, Corlette, North Shore, and Booker Bay.

These risks could have a clear impact on property value in sought-after coastal locations. It's important homeowners are aware of risks to best plan for the future, while homebuyers account for this in their negotiations and factoring costs for insurance, the risk of not obtaining insurance and loss of value on re-sale.

However, it does not necessarily mean that sales in these areas will be curtailed. Some of the most vulnerable coastal properties are now getting infrastructure investment to improve their resilience from erosion and flooding. It is also human nature to still be attracted to beachfront and riverside locations and premiums are still commanded for this.

There are other wider reasons for choosing a particular location, whether the character of the neighbourhood, facilities and schools. Until now, climate change has not been front of mind. However, a new generation of homebuyers will demand insight on the risks this may pose as they are more alive to it and think more for the long term for their family and financial security. So, the pros and cons will be weighed more evenly.

## Top 20 suburbs - Data rationale

---

The top 20 suburb data was compiled using Groundsure's own Coastal Erosion Risk, which assigns current and 30 year risk levels to every property in New South Wales. To gauge suburb-level risk, we integrated this property-level risk analysis with suburb data from the Spatial Services Department of the NSW Government using their administrative boundaries. This pinpoints suburbs with the highest count of properties at very high risk.

## Data rationale *(continued)*

Our final rankings prioritise suburbs with the most properties facing imminent risk. Our logic is that more properties highly likely to experience coastal erosion, regardless of the percentage of properties within a suburb, will correspond to higher capital expenditure and displacement from homes.

To predict future risk, we have combined historical erosion data with current coastline geomorphology. Our algorithm estimates the time until the coastline reaches a property. We then categorise the risk: our 'Today' rating assesses threats most highly which will impact the property in the near future, while our 30-year projection evaluates long-term erosion concerns to the property owner in the future.

### Case study: Wamberal Beachfront

---

#### Property address

Ocean View Drive,  
Wamberal,  
New South Wales,  
Australia



**In New South Wales alone, many locations are significantly exposed to coastal erosion problems. According to the Groundsure ClimateIndex™ analysis, an estimated 13,000 + NSW properties are at risk of coastal erosion.**

Coastal erosion is a natural process that occurs when ocean storm activity impacts a beach. This becomes a problem when coastal infrastructure and public safety are threatened. Many locations along the NSW coast are facing significant issues, but Wamberal Beach is one of the most exposed, representing a significant potential total loss in real estate value.

Wamberal, an Aboriginal word meaning 'where the sea breaks' is a coastal suburb of the Central Coast region, 90km north of Sydney, where the average property price is \$1.7million.



## Case study: Wamberal Beachfront *(continued)*

Multi-million dollar beachfront homes sit on a cliff which is eroding at a rate of over 1 metre per year. Since 1991, the shoreline at Wamberal has eroded up to 37m in some places.

In a cost-benefit publication from 2017 looking into the options to protect the beachfront properties at Wamberal, seven engineering options were considered. They all imposed a net economic cost on the community, compared to continuing with the status quo approach of no specific attempt to prevent the effects of coastal erosion.

The report concluded that none of the engineering options considered would provide a net benefit, and only a planned retreat option would provide greater benefits than the current situation. All options, whether planned retreat or the construction of a seawall are likely to result in a beach that cannot be used for recreational purposes by 2064.



### Situation worsening after storms

In 2020, a severe storm battered the coastline leaving these homes teetering on the edge over eroding sand. Whilst it may be fortunate that another event of this magnitude has not occurred, yet, the homes still remain exposed, and 3 years on, a long term solution is yet to be decided.

After the storm, the former government created a task force to find a solution to the erosion crisis, with one recommendation being a concrete seawall, similar to the eyesore at Collaroy Beach in northern Sydney.

With the taskforce being disbanded, the plan has fallen into the Council's hands. However, they have said that the design, construction and maintenance of the seawall falls to the residents of the beachfront properties.

Should a resident refuse to pay and damage to their neighbours properties occur in the future, they could become liable for damages.

# Case study: Wamberal Beachfront

(continued)

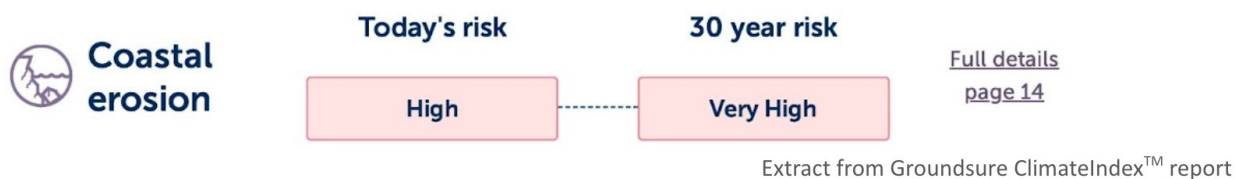
After the storm, the former government created a task force to find a solution to the erosion crisis, with one recommendation being a concrete seawall, similar to the eyesore at Collaroy Beach in northern Sydney.



With the taskforce being disbanded, the plan has fallen into the Council's hands. However, they have said that the design, construction and maintenance of the seawall falls to the residents of the beachfront properties. Should a resident refuse to pay and damage to their neighbours properties occur in the future, they could become liable for damages.

## Identifying the Risks

The Groundsure ClimateIndex™ report clearly identifies the exposure of retreat at Wamberal as well as the overall wider flood risk to the beach today and also over a 30 year period.

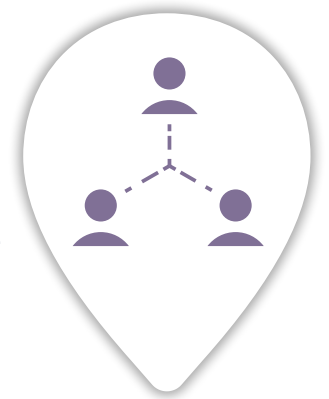


While potential buyers will be lured by the heart to its prime beachside location, the high risk ratings that these properties reveal, shows how this has to be a decision made ultimately by the head not the heart.





# Advising clients on coastal erosion risk



Conveyancers and lawyers are acting in their clients' best interests and to advise where decisions that could be made are exposed to significant risk. For this reason alone, the homebuyer has a right to know what could lie ahead as they make the most expensive financial decision of their lives.

Lawyers have an automatic duty of care to their client – it is a fundamental principle of the contract, but it goes wider than that. *A legal opinion from Norton Rose Fulbright*, one of Australia's pre-eminent environmental law practices, was published in Spring 2023. The Opinion identifies that not only do lawyers and conveyancers have a duty of care, but they also have a duty to disclose and to warn on the basis that information is readily available for them to do so in an easy and accessible way.

There have been a number of prominent legal experts and associations that have also spoken out to this effect. Justice Brian Preston, Chief Judge of the Land and Environment Court of NSW, published a 2020 paper on adopting "A climate conscious approach to legal practice". He stated that "it requires lawyers to have an active awareness of the reality of climate change and how it interacts with daily legal problems" and to "giving advice and litigating or resolving the legal problem or dispute in ways that meaningfully address the climate change issues."

In 2021, The Law Council of Australia published their climate change policy. In the summary, they stated that "lawyers should be alive to the unfolding legal implications of climate change and its consequences, and they should be informed, skilled and ready to assist clients on climate change-related legal matters, within their areas of skill and competence."

The New South Wales Law Society is perhaps the most proactive Lead Association to date and has established a Working Group to consider how best to support members and to develop its advocacy work on how to respond to the climate challenge from a legal perspective. We understand that the Society continues to review the UK Law Society Guidance and its core principles, as well as a newly published legal opinion from the pre-eminent environmental law team at Norton Rose Fulbright.



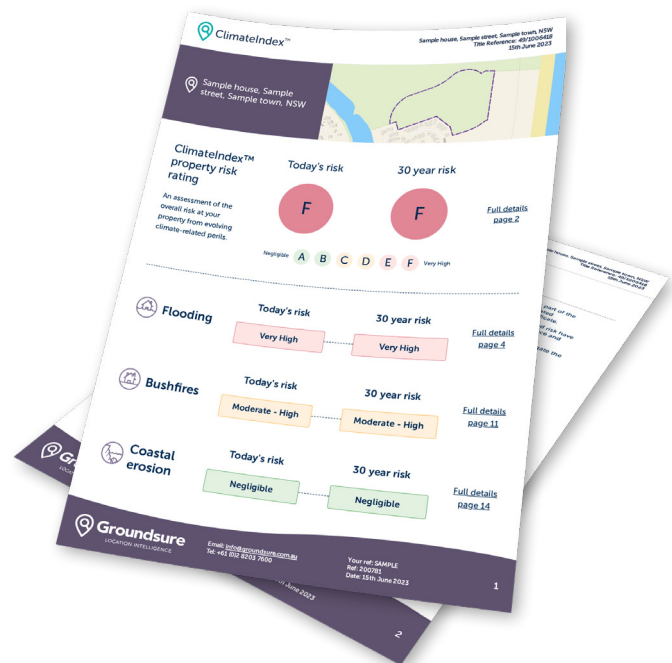
# Advising clients on coastal erosion risk (continued)

## A simple way to meet future compliance

The Climateindex™ report provides a clear, simple way to support your client care and fulfil your duties, while preparing for new Guidance. Through careful modelling, we are able to and project forward up to 30 years based on current trends for the 3 key physical risks in one location. This makes it cheaper and more efficient for the lawyer and provides improved insight to support the prevailing 10.7 Certificate that typically looks at past events without signposting to what the future trend could be.

It provides property-specific assessments for individual residences, instead of broad regional ratings. They are specifically designed for property lawyers and conveyancers to do their due diligence and better inform buyers.

Find out more about ClimateIndex™:



Watch our video:



## How to order



The Groundsure ClimateIndex™ Report is **available to order now through InfoTrack** for New South Wales properties.



For more information on ClimateIndex, speak to your InfoTrack account manager or email us at [info@groundsure.com.au](mailto:info@groundsure.com.au).

## References

\*35% – the percentage of NSW population that live within 10km of the coastline: Groundsure ClimateIndex 2023

\*AUS\$25 Billion – worth of property assets exposed to coastal erosion: (Corelogic 2022) <https://www.corelogic.com.au/news-research/news/2022/25-billion-in-australian-residential-property-exposed-to-high-coastal-risk>

\*48% – the amount of beaches that experienced coastal erosion during La Nina years between 1984 and 2022: University of New South Wales study, published in the Guardian, Feb 2023: <https://www.theguardian.com/australia-news/2023/feb/09/famous-australian-beaches-vulnerable-to-severe-coastal-erosion-caused-by-la-nina#>

\*900,000+ – the number of properties identified at some level of coastal erosion risk: (Corelogic 2022) <https://www.corelogic.com.au/news-research/reports/climate-risk-solutions-measuring-risks-to-coastal-properties>

<https://www.ga.gov.au/education/natural-hazards/coastal-erosion>

Department of Climate Change, 2009: Climate change risks to Australia's coast: a first pass national assessment. Australia Government, Canberra. pp. 172. Accessed 14 June 2016. [Available online at <http://www.environment.gov.au/system/files/resources/fa553e97-2ead-47bb-ac80-c12adffea944/files/cc-risks-full-report.pdf>].





Groundsure is a leading environmental and climate data authority. We give land and property professionals expert information on risks including land contamination, flooding and ground stability, as well as forward guidance on potential climate risks, to advise their clients in the transaction. We provide high value, property-specific opinions and analysis of land use, turning data into practical, actionable insight.



For more information visit:

[www.groundsure.com.au](http://www.groundsure.com.au)

Email: [info@groundsure.com.au](mailto:info@groundsure.com.au) Tel: [+61 2 7912 0117](tel:+61279120117)

Address: [Level 8, 135 King Street, Sydney, NSW 2000, Australia](#)

