Tasmanian Geological Survey
Record 2009/04

Historical accounts of tsunamis in Tasmania

by M. K. Morris & C. Mazengarb

Department of Infrastructure, Energy and Resources
Mineral Resources Tasmania

Tasmania
Explore the possibilities

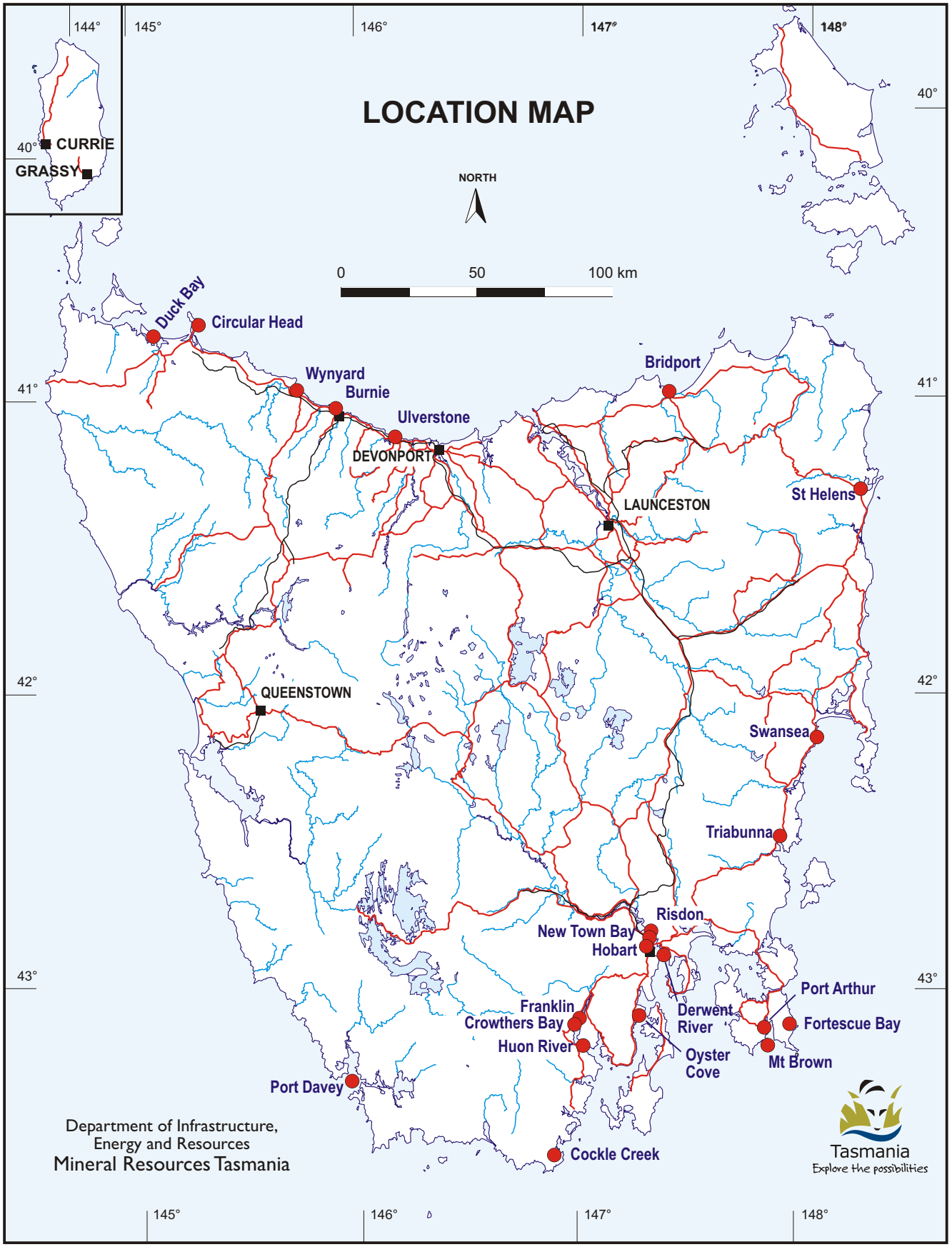

Figure 1. *Locations discussed in text*

Mineral Resources Tasmania PO Box 56 Rosny Park Tasmania 7018
Phone: (03) 6233 8377 ● Fax: (03) 6233 8338
Email: info@mrt.tas.gov.au ● Internet: www.mrt.tas.gov.au

CONTENTS

Cover Photo: Mattingleys Beach, Bridport the site of an unusual wave event in 1953. (Photo: C Mazengarb, 2009)

Abstract

This report is a collation of historical accounts of unusual wave activity around the Tasmanian coastline. Sixteen events have been recorded since 1852, some of which are most likely tsunamis generated from relatively local to distant sources. The cause of some of the events recorded is uncertain. The report provides an insight into the frequency and effects of tsunamis during the period of European settlement although the record is undoubtedly incomplete and not long enough to capture the full range of potential events.

Introduction

This report is a compilation of European era records of tsunamis in Tasmania undertaken as a supplementary exercise and recommended by a palaeotsunami investigation of the Hobart area in 2007 (Cochran and Wilson, 2007). The purpose of this report is to systematically document references of possible tsunami events in order to gain a better understanding of their frequency and effects. The report represents approximately three months work with much of the information sourced from records kept in the State Library of Tasmania.

This was largely a desktop study, supplemented by limited field work to confirm details associated with recent events. Given the limited time available it was not possible to scan all available documents. Rather, the research strategy employed was to identify key dates based on existing summaries such as Rynn (1994), Dominey-Howes (2007), web-based catalogues such as the National Geophysical Data Centre (http://www.ngdc.noaa.gov/), and discussions with organisations and experts in Australia and New Zealand (listed in the *Acknowledgements* section).

The reader should be aware that the accuracy of historical reports cannot always be guaranteed. The limited scope of this report was such that it was not possible to provide indications of reliability using the method employed in the National Oceanic & Atmospheric Administration (NOAA) catalogue.

In the first years of colonial settlement news was carried aboard ships, and information from New Zealand, for example, might well travel as far as England before it was carried back to Tasmania. For this reason it has been imperative to read newspapers dated up to a month or so after a given event was known to have taken place. Furthermore, each newspaper had its own style of reporting. Sometimes information appeared in letters to the editor, and at other times information of a past activity was given following a more recent event. It should be noted that the word 'tsunami' only started being used consistently in the last 20 years or so and before that 'tidal wave', 'seismic wave' or 'earthquake wave' were often used. A listing of all documents is provided in Table 1.

The report provides transcripts of relevant documents coupled with a brief summary. Key locations are provided in Figure 1 and a summary chart of key findings is presented in Table 1. A summary of all references reviewed is provided in Table 1 as a way to eliminate duplication of effort by others in the future. It must be realised that some events could have been missed and some records are ambiguous and may not necessarily be true tsunamis. Therefore, while this report provides a useful research resource for ongoing studies, the reader must exercise caution in drawing conclusions from the supplied information.

Geoscience Australia define a tsunami as follows:

> *Tsunami* (pron: 'soo-nar-me') is a Japanese word; 'tsu' meaning harbour and 'nami' meaning wave. The phenomenon is usually associated with earthquakes, landslides or volcanic eruptions in, or adjacent to oceans, and results in sudden movement of the water column. Until recently tsunamis were called tidal waves, even though the event has nothing to do with tides. A tsunami is different from a wind generated surface wave on the ocean. The passage of a tsunami involves the movement of water from the surface to the seafloor which means its speed is controlled by water depth. Consequently, as the wave approaches land and reaches increasingly shallow water it slows. However, the water column that is still in deeper water is moving faster and catches up, resulting in the waves bunching up and becoming much higher. A tsunami is often a series of waves and the first may not necessarily be the largest.

30 September 2007

Nature of event

On 30 September 2007 a magnitude 7.4 earthquake occurred 205 km northwest of Auckland Islands and 1245 km southwest of Wellington in an area known as the Puysegur Trench. This event generated a small tsunami that affected the east coast of Australia (USGS National Earthquake Information Centre, reference 1053).

See Reference 16 in Table 1.

Research summary

A warning was given after the tsunami was generated 1400 km southeast of Tasmania. The tide gauge at Triabunna recorded fluctuations of around 200 mm. Witnesses in St Helens, Spring Bay and Fortescue Bay recorded estimates of approximately 300 to 350 mm (see fig. 1).

ABC News, Sunday 30 September 2007
www.library.uq.edu.au/ssah/useits/news.html

Tasmania's Bureau of Meteorology has confirmed the effects of a small tsunami have been noticed around the state.

A tsunami warning was issued mid-afternoon after a large undersea earthquake off New Zealand. The warning, which initially included coastal New South Wales and Victoria as well as Tasmania has been cancelled. Senior forecaster Simon McCulloch says the effects were minimal, with swells estimated to be around 20 centimetres. He says the tsunami's effects were noticed about half an hour later than predicted. "We've also had some reports of perhaps some unusual swells in the Derwent as well, so we are seeing some effects from the tsunami," he said. "It's not particularly high, but it was delayed on the original prediction." The bureau issued a tsunami warning mid-afternoon after a large undersea earthquake off New Zealand. The St Helens volunteer coastguard says a small rise was observed in the ocean on Tasmania's east coast, following this evening's tsunami warning. Coastguard commander Ian Hollingsworth says he noticed the surge at around 5.50 pm AEST and estimates the water swelled by about 30 centimetres. "What happened was fairly unusual in that there's no swell or anything like that at the moment, so you'd probably have to put it down to being that little bit of surge from what they're describing happened today," he said.

The Examiner, Monday 1 October 2007
Microfilm records, State Library of Tasmania

Tsunami scare
New Zealand quake prompts alert in Tasmania

A large undersea earthquake south of New Zealand prompted authorities to issue a tsunami warning for parts of Tasmania and the mainland yesterday. The quake was measured at 7.6 on the Richter scale and occurred at 3:23 pm about 350 km south-west of New Zealand's South Island and about 1400 km south-east of Tasmania. Through the Bureau of Meteorology, residents at St Helens, Spring Bay and north to Sydney were issued with a top priority immediate tsunami bulletin. While the alert was dropped for mainland States late yesterday afternoon, it remained in place for the East and South-East coasts of Tasmania, and many areas reported a slight rise in sea levels. St Helens Coast Guard commander Ian Hollingsworth said he had noticed a rise of about 30 cm in the sea off St Helens about 5:30 pm yesterday, just when any expected rise was predicted to occur. "We were watching the beach over near the sea wall in Burns Bay at the entrance to St Helens," Mr Hollingsworth said. "The tide was low at the time and we noticed that it moved up to a bit under half a tide's line for about 30 seconds. There was no sea running, no wave or anything like that ... so we put it down to that being what it was." However, Mr Hollingsworth said that if he had not been looking for the rise he would not have seen it. "It was hardly noticeable'" he said. "But there was no other reason for it to lift all of a sudden like that." While the tsunami alert was cancelled about 8 pm yesterday, Mr Hollingsworth wondered how effective the alert system had been. "If you weren't listening to the ABC (radio), you wouldn't have known," he said. "There was no alert given (to us), we weren't made aware of anything. Whereas the last one that happened...the police were made aware of it, they got in touch with us and we spoke to people who were out boating and made them aware."

The Mercury, Monday 1 October 2007
Microfilm records, State Library of Tasmania

Tsunami alert proves barely a ripple

Hobart was placed on tsunami alert last night after an earthquake off the south coast of New Zealand — but no threat emerged after sea-level fluctuations of only about 20 cm. The Bureau of Meteorology released the warning after the Joint Australian Tsunami Warning Centre detected the 7.6 magnitude quake at 3:23 pm The earthquake's epicentre was about 350 km south-west of New Zealand's South Island and about 1400 km south-east of Tasmania. The warning initially covered Tasmania, New South Wales and Victorian coasts but was later downgraded to just south-eastern Tasmania with the wave expected to reach Hobart about 6:15 pm. Sea-level fluctuations of about 20 cm were recorded by a tidal gauge at Triabunna. Senior forecaster Tim Bolden said the event was not a major threat. The tsunami effect would have been greater in Tasmania than New Zealand because the waves propagated more quickly in deeper water. "The earthquake occurred on the Macquarie Rise which extends from New Zealand to Macquarie Island," Mr Bolden said. "It's a mid-ocean ridge at a plate boundary and the rise drops very quickly in depth towards Tasmania, hence the wave propagates quickly in our direction." A second earthquake occurred at the same epicentre at 7:47 pm with a magnitude of 6.74 on the Richter scale but did not generate a second tsunami. The bureau's Hobart office was bombarded with phone calls following the release. One caller reported a wave of 30–35 cm at Fortescue Bay on the Tasman Peninsula. Mr Bolden said the bureau had not received any reports of damage. "There may well be seaweed up on beaches

tomorrow or dead fish, but so far there hasn't been any damage reported," he said. There were no reports of the quake being felt in New Zealand or Australia.

The Advocate, Monday 1 October 2007
Microfilm records, State Library of Tasmania

Tsunami alert for Tassie after NZ quake

The State's East Coast and south-eastern areas of the mainland were put on tsunami alert yesterday after undersea earthquakes struck near New Zealand. While sea level fluctuations were measured in Tasmanian waters around 6 pm by the Bureau of Meteorology, no harm was caused and the warnings were downgraded. Duty forecaster, Simon McCulloch said the bureau received a number of calls from worried and confused members of the public in Tasmania during the alert. The alert from the Joint Australian Tsunami Warning Centre came after a tsunami was generated from the strongest quake about 1400 km south-east of Tasmania. The quake with a magnitude of 7.6 struck at 3:23 pm near the uninhabited Auckland Islands about 350 km south-west of New Zealand's South Island. The centre issued warnings about 15 minutes later advising coastal residents from Sydney to Hobart to listen for updates from emergency services. Effects of the quake were seen in waters off Spring Bay on Tasmania's east coast. "We started to see some fluctuations there of around about 20 cm," Mr McCulloch said. The warning was dropped for the NSW and Victorian coastline shortly after 6 pm and in Tasmania around 8 pm.

The Age, Monday 1 October 2007
Microfilm records, State Library of Tasmania

Bureau explains tsunami warning

The Bureau of Meteorology has defended its handling of a potential tsunami threat to Victoria's coast following an earthquake off New Zealand yesterday, saying it could have cancelled the warning sooner. The bureau sent out a warning about a potential tsunami threat to coastal parts of Victoria, Tasmania and NSW at 3:49 pm — less than half an hour after the earthquake. About two hours later, the warning was downgraded to a "no significant threat" bulletin for Victoria and NSW. Tony Leggett, a supervising meteorologist at the bureau department responsible for tsunami warnings, agreed these threat cancellations could have come earlier. But he said staff wanted to see the impact of the waves along the Tasmanian coast before revising the warnings. "We were pretty convinced it was going to be a weak event, so it made sense for us to hold on a little bit longer and wait for it to arrive in Spring Bay (Tasmania)," he said. "We feel as though we didn't overwarn, we probably just took a bit too long to cancel, but if you cancel it too soon you never know for certain." Mr Leggett said the bureau had been talking to state emergency services in Victoria, Tasmania and New South Wales throughout the day. The bureau was alerted to a tsunami threat after an undersea earthquake with a magnitude of 7.6 on the Richter scale off the south-west coast of New Zealand at 3:23 pm (AEST) yesterday. Motion detectors off Hawaii detected the quake and issued a warning for a potential tsunami. Yesterday's alert was the first tsunami warning issued in Victoria.

The Mercury, Tuesday 2 October 2007
Microfilm records, State Library of Tasmania

Small tsunamis can pose danger

Tsunamis as small as the 20 cm wave that hit Tasmania's East Coast on Sunday can still be dangerous, says the Bureau of Meteorology. The bureau's National Meteorological and Operations Centre yesterday said a small tsunami could be deadly to swimmers or boat operators in shallow waters. "They may only be small in height but their momentum can make them quite dangerous," supervising meteorologist Tony Leggett said. Sunday's tsunami travelled about 700 km per hour, hitting Tasmania 2.2 hours after being triggered by an earthquake south of New Zealand about 1500 km away. "We had observations of 20 cm tsunamis in the Spring Bay gauge and up to 35 cm at Port Kembla, New South Wales," Mr Leggett said. "There may well have been slightly larger ones." A fisherman who reported a 30 cm to 35 cm tsunami at Fortescue Bay on Tasmania's Tasman Peninsula was grateful for the bureau's warning, having placed extra anchors to resist its drag. The tsunami warning was the second released since April.

The Mercury, Friday 5 October 2007
Microfilm records, State Library of Tasmania

Tsunami study makes waves

A 20 cm tsunami that lapped at Tasmania's shores this week was nothing compared to a series of super waves that may have once pummelled the coasts of Australia and New Zealand. Anecdotal reports of mini tsunamis, triggered by an undersea earthquake south of New Zealand, put its size at Fortescue Bay and St Helens at between 30 cm and 35 cm. But a study is under way to determine if Australia and New Zealand were once hit by mega-tsunamis many times the size of the 2004 Boxing Day disaster, and what risk there is of any repeat. Scientists from both sides of the Tasman are looking for geological evidence that both countries were hit by super waves in the past 10,000 years. Controversial data has suggested three or four huge tsunamis may have hit southeastern Australia during that period, though scientists are divided about how severe the events were. Some studies in NSW have said there is evidence of mega-tsunamis many times larger than the 2004 event in the Indian Ocean, which was caused by a huge undersea earthquake and killed hundreds of thousands of people. Researchers have pointed to sedimentary evidence and the presence of large boulders, deposited on 30 metre tall cliffs in the Jervis Bay area of NSW's south coast, as well as strange rock formations at Cathedrals, 80 km south of Sydney. If such large events did occur in the region, there should also be geological evidence in New Zealand. So the hunt is on. Dale Dominey-Howes from the University of NSW is heading the new three-year study, which aims to establish how real is the risk of a catastrophic tsunami in the future. Researchers say more than 300,000 lives and property worth more than $150 billion on the NSW coast could be vulnerable if a big tsunami hit. Dominey-Howes is sceptical about some of the tsunami claims, but says the possibility that huge waves had hit Australia must be properly investigated. "If it is true it has profound implications for vulnerability and risk on [Australia's] southeast coast, because of the enormous infrastructure and assets and people that are exposed...It would be really scary," he said.

The Examiner, Tuesday 9 October 2007
Microfilm records, State Library of Tasmania

Tsunami hoax

A number of hoax phone calls regarding a potential tsunami were received by St Helens residents last night. The recorded message stated that a "new tsunami warning" had been issued for the area. A Bureau of Meteorology spokeswoman said that there had not been a tsunami warning issued for Tasmania last night. She said the bureau had received a number of calls from concerned residents. Tasmania Police said the calls were being treated as a hoax.

The Examiner, Wednesday 10 October 2007
Microfilm records, State Library of Tasmania

Police investigating tsunami phone calls

Monday night's spate of tsunami-related phone calls to St Helens residents is being investigated by Tasmania Police. A large number of the households received computer-generated messages concerning a tsunami warning, prompting a flurry of calls to police and the Bureau of Meteorology. No tsunami warning had been issued at the time, and a spokesman said police would continue to investigate the hoax calls, which were believed to have been traced to a mainland phone number. A Bureau of Meteorology spokesman said calls similar to those received at St Helens were also reported in Rockhampton, Queensland. The spokesman said that tsunami warnings were issued to the public via the media, not to individual households over the phone. He said that in the event of a tsunami, residents could get up-to-date information from the bureau's Web site www.bom.gov.au, or radio or television.

ABC News, Saturday 15 December 2007
www.library.uq.edu.au/ssah/useits/news.html

No tsunami risk from quakes: Geoscience Aust. There has been a second earthquake in Indonesian waters causing tremors that were felt in Darwin.

An earthquake just after 7:00 pm (AEDT) in the Banda Sea measured 6.2 on the Richter scale. No damage or injuries were reported. A second earthquake at 8:40 pm (AEDT) has struck the Taninbar Islands region of Indonesia. Its magnitude was 6.4 on the Richter scale. The duty seismologist with Geoscience Australia, Dr David Jepson, says they are quite common events and there is no risk of a tsunami. "These are deepish earthquakes. They're about 100, 150 km deep so they shouldn't really cause any damage," he said. "You never know what can happen there but they will not be tsunami-genic, (they're) too small to be tsunami-genic. Magnitude-6 earthquakes occur all the time in Indonesia. They're actually quite a regular occurrence".

3 May 2006

Nature of event

On 3 May 2006 a magnitude 8.0 earthquake took place in the Tonga Islands which was also felt in New Zealand. This resulted in the tide gauge at Spring Bay, Tasmania, recording a small tsunami measuring c. 0.2 metres msl. No eyewitness accounts have been recorded to date.

See reference 15 in Table 1.

28 March 2005

Nature of event

On 28 March 2005 a magnitude 8.7 earthquake took place near the island of Nias, Sumatra, Indonesia. The NW coast of Nias was particularly affected. In Tasmania the tide gauge at Spring Bay measured a small tsunami of c. 0.2 metres msl. No eyewitness accounts have been recorded to date.

See reference 14 in Table 1.

26 December 2004

Nature of event

On 26 December 2004 a magnitude 9.0 earthquake was located off the west coast of Sumatra in Indonesia, generating a tsunami that was recorded nearly world-wide and killed more than any other tsunami in recorded history (USGS National Earthquake Information Centre, reference 1610). In Tasmania, the tide gauge at Spring Bay recorded a maximum wave height of 600 mm (USGS National Earthquake Information Centre, reference 1610).

See reference 13 in Table 1.

Research summary

While local newspapers did not report on the local impact of this event, eyewitnesses at Cockle Creek reported seeing waves of 1.5 m (see fig. 1).

Albert Thompson,
Parks and Wildlife Services, Tasmania
(pers. comm. Tuesday 6 February 2008).

My present day recollections in relation to Cockle Creek on 27 December 2004 are as listed below.

From the unusual wave events observed at Cockle Creek on 27 December 2004 I became aware of the unusual effects at approximately 0700 hours (the unusual water action had been active for some time (hours) prior as the damage to the bridge abutment road foundations had already occurred) and observed them on and off during the morning and early afternoon.

Recollections are:

- The water was rising and falling 1.5 m approx. (estimated on bridge piles);
- There were strong and cold winds associated with the water movement (I do not recall the direct relationship except that it started immediately before the water flow started and stopped when the water stopped flowing).
- The time lapses between high water and low water were approximately 40 minutes each way (that is 40 minutes flowing in then 40 minutes flowing out with short time lapses in between).
- The height of sand erosion was approximately 1.5 m at its deepest from the bridge looking north.
- Damage to road formation occurred at approximately 07:30 am.

In addition, Albert Thompson supplied the following written report:

Communication of Report No. 506099JC on file
Compiled by Mr M Bryce, 27 December 2004

Cockle Creek

King tides have washed a hole on the northern site of the Cockle Creek Bridge (not Catamaran Bridge). It is not possible to drive vehicles over the hole. Albert Thompson (mobile phone number) is on site and has closed the road.

Contractor Ross Pettit (mobile phone number) is organising an excavator and truck to fix the problem today. Gravel and rock is to be sourced from the Forestry quarry just north of the D'Entrecasteaux River. There is crushed metal in the quarry and this is not to be used. Quarry run material is available in the corner of the quarry. Approval to use the quarry material was obtained from Darrel Doyle FT Work Supervisor.

Media office has been notified via Moya Fyfe.
Also acting GM (Stuart Lennox) has been notified.

23 December 2004

Nature of event

On 23 December 2004 a magnitude 8.1 earthquake was located at Macquarie Island, and was felt throughout Tasmania. The specific area affected was the Macquarie Rise in the Pacific Ocean about 800 km off the coast of Tasmania. At the time, this event was one of the largest earthquakes recorded anywhere in the world in almost four years. A wave height of 150 mm was recorded at Spring Bay, Tasmania (USGS National Earthquake Information Centre, reference 1053). No eyewitness accounts have been recorded to date.

See reference 12 in Table 1.

23 May 1989

Nature of event

On 23 May 1989 a magnitude 8.1 earthquake took place near Macquarie Island and generated a tsunami that was felt along the southeast coast of Tasmania. The tide gauges at various locations in Tasmania recorded wave heights of up to 300 mm from peak to trough (Satake and Kanamori, 1990). No eyewitness accounts have been recorded to date.

See reference 11 in Table 1.

The Mercury, 24 May 1989
Microfilm records, State Library of Tasmania

Macquarie is shaken by big quake

A BIG earthquake shook Macquarie Island late last night — and tremors were felt in Hobart. *The Mercury* last night received several calls from Hobart residents reporting earth tremors. A senior research scientist at the Australian Seismological Centre in Canberra, Dr Kevin McCue, said the earthquake was so massive the centre had measured shockwaves travelling around the Earth and meeting each other again. The station leader at Australia's Antarctic Division station on the island, Ms Alison Clifton, said a "fairly severe" quake had struck the base, 800 nautical miles south-east of Tasmania, about 9 pm "It was pretty noisy," she said. "It was certainly sizeable." It had rattled buildings but there was no damage. Undersea earthquakes sometimes produce tidal waves but Mr McCue and Ms Clifton both said there was no evidence this had happened in last night's quake.

Satake and Kanamori (1990)

The Macquarie Ridge extends south of New Zealand and forms a plate boundary between the Pacific and Australia plates.

The Macquarie Ridge earthquake was the largest strike-slip earthquake ever recorded instrumentally. Seismological observation of the Macquarie Ridge earthquake shows that the duration and fault size are very small for an event with a magnitude of 8.1 on the Richter scale. A large slip (more than 9 m) on the fault plane is required to explain the seismic moment. This large slip produces a large amount of uplift and subsidence at the edge of the fault which excites tsunamis.

An earthquake like this event produces significant vertical displacements on the ocean bottom and excites tsunamis. There seems to be a common misconception that tsunamis are not generated by a strike-slip earthquake. Both observation and theory showed that this is not the case.

Another interesting feature of this event is that small tsunamis were observed on the southern coast of Australia despite the strike-slip mechanism. Tsunamis from the 1989 event were recorded at least at four tide gauge stations in south-eastern Australia, south-east Tasmania and south-eastern New South Wales (McCue, 1990). The maximum peak to trough reported to be 30 cm.

More data, particularly tsunami records from Australia, will help to better constrain the fault model and clarify the source process of this unusual earthquake.

28 March 1964

Nature of event

On 28 March 1964 a magnitude 9.2 earthquake in the USA struck Prince William Sound, Alaska (USGS National Earthquake Information Centre, reference 1053). Extending from Valdez to the Trinity Islands, the area affected was almost 1600 km long and more than 300 km wide and the earthquake generated twenty landslides which in turn created tsunamis. According to a geophysicist in Tasmania, tide gauge readings of 4 feet 9½ inches (1.46 m) were recorded at that time.

See reference 10 in Table 1.

Research summary

Seismographs at Hobart, Melton Mowbray, Tarraleah and Cressy recorded a very sharp initial impulse after the event and unusual tide gauge readings indicated that the first tsunami wave reached Hobart about 2:30 pm on 29 March 1964. No eyewitness accounts have been found to date (see fig. 1).

The Examiner, 30 March 1964
Microfilm records, State Library of Tasmania

66 Dead in Alaskan Earthquake Disaster
Quake waves reach Hobart
Shock waves from the Alaska earthquake were recorded in Tasmania.

Tidal waves interfered with tides in Hobart yesterday afternoon. Seismographs at Hobart, Melton Mowbray, Tarraleah and Cressy recorded a very sharp initial impulse about two hours after the event, the senior lecturer in geophysics (Dr R. Green) said in Hobart last night. He said the earthquake was big enough to excite every type of land waves generated by earthquake. Calculations based on readings in Tasmania put the intensity of the earthquake at 7¾ on a scale with a maximum magnitude of 8½. The tidal waves, or tsunamis propagated by the earthquake would have crossed the Pacific Ocean about 500 miles an hour, Dr Green said. They would be unnoticeable at sea, where they would be about six inches high and about two hours apart.

Dr Green said unusual tide gauge readings indicated the first tidal wave reached Hobart about 2:30 pm. The reading had fallen to 2 ft. 11 in. above low water. Subsequent readings included 3:30, 3 ft. 8 in.; 4:30, 3 ft. 2 in.; 6:00, 3 ft. 7 in.; 8:00, 4 ft. 3 in.; 8:45, 4 ft. 9½ in. This seemed to fit in with a picture of tsunamis arriving in Tasmanian waters, Dr Green said. By this stage their energy was almost spent. He recalled that in May, 1960 tidal waves 2 ft. high were registered in Hobart after disastrous earthquakes in Chile.

The Advocate, 30 March 1964
Microfilm records, State Library of Tasmania

Alaska quake. Tidal waves interfered with tides in Hobart yesterday afternoon.

"Seismographs at Hobart, Melton Mowbray, Tarraleah and Cressy recorded a sharp initial impulse about two hours after the event," the senior lecturer in geophysics at the Tasmanian University (Dr R. Green) said last night. Calculations based on readings in Tasmania put the intensity of the earthquake at 7¾ on the Richter scale, which has a maximum magnitude of 8½. The tidal waves, or tsunamis, propagated by the earthquake would have crossed the Pacific Ocean at about 500 miles an hour, Dr Green said. They would be unnoticeable at sea, where they would be about six inches high and about two hours apart. Dr Green said unusual tide gauge readings indicated the first tidal wave reached Hobart about 2.30 pm. He recalled that in May 1960, tidal waves with a height of two feet were registered in Hobart after disastrous earthquakes in Chile.

22 May 1960

Nature of event

On 22 May 1960, a 9.5 magnitude earthquake occurred in Puerto Montt, Valdivia, Southern Chile. The main shock generated a tsunami that was destructive along the coast of Chile, Hawaii and Japan and was noticeable throughout the Pacific Ocean area (USGS National Earthquake Information Centre, reference 1053). The Marine Board in Hobart recorded tide gauge readings of 18 inches.

See reference 9 in Table 1.

Research summary

In Tasmania, a 'tidal wave' warning issued by police caused panic in many parts of the State. Factories closed as employees left the buildings to move their cars to higher ground. In South Hobart some locals evacuated their homes. A school was also evacuated and it was later reported that instead of returning home, a number of school children had gone to the beach to watch the wave come in. Scallop boats along the East Coast were tossed about and unable to moor at their usual jetties. Vessels in port at the Burnie wharves lost their moorings. In Ulverstone a dinghy was found drifting six miles off shore and a fisherman drowned at Wynyard when he fell off his boat. At Dunckels Beach, Bruny Island, a wave was witnessed running up onto a paddock, although the exact date is not confirmed and this observation could be related to the later 1964 event (above) or neither of them.

The Examiner, Tuesday 24 May 1960
Microfilm records, State Library of Tasmania

Dinghy found adrift near Ulverstone

The police are anxious to find the owner of a small dinghy found drifting about six miles out from Ulverstone yesterday. The dinghy was found by Mr Arthur Allen Moore, fisherman, of Alice Street, Ulverstone, who took it in tow. The dinghy is of grey marine ply, red below the waterline and green inside. In the boat are an anchor and pair of oars. When found, a rope trailing from the dinghy indicated that it had broken adrift.

The Mercury, Wednesday 25 May 1960
Microfilm records, State Library of Tasmania

Sydney Harbour in chaos from quake wake

A spokesman for the Maritime Services Board said "We can only tell the size of it when it arrives. It's just a matter of trusting to luck." The dying surge of the tidal wave reached Tasmania yesterday to toss scallop boats about on the East Coast.

20-minute tides

In Hobart it was mainly visible through the charts kept by the Marine Board which showed an up and down movement of 18 inches each 20 minutes. This began at 10 pm on Monday and was still continuing when the chart was read at 9 am yesterday and then on into the day. The tide vagaries are expected to continue following more undersea earthquakes near Chile. At Triabunna yesterday the up-and-down movement of the tide was so great that scallop boats were unable to moor at their usual jetties in many cases. Mr L .Taylor had to take his boat out to a deep sea jetty because it would otherwise have grounded or washed to the side of a narrow channel. A 16-foot boat belonging to Mr F. Leary was washed away from its moorings and caught under a bridge, damaging a mast. Scallop fishermen working along the coast all reported having had difficult conditions which interfered with their work. To people ashore the tide seemed to be running in and out about every 10 minutes. At St Helens no damage was reported, but the tides were also inconsistent, running in and out very rapidly. The lecturer in geophysics at the University of Tasmania (Mr R. Green) said last night that he had examined the Marine Board charts with great interest. He said it seemed that an immense earthquake had set

up tidal waves all over the Pacific. They had a distance from crest to crest of about 40 to 50 miles and travelled about 200 m.p.h. In this way it took the waves about 36 to 40 hours to reach Tasmania. He added that further erratic movements in Tasmanian tides would be likely to show on today's chart. Mr Green said that the tidal waves caused by undersea earthquakes were not uncommon and Japanese term 'tsunami' meaning 'giant wave' had been generally accepted.

The Advocate, Thursday 26 May 1960
Microfilm records, State Library of Tasmania

Tides normal

Despite reports elsewhere of freak tides due to the recurring earthquakes in Chile, no unusual surges have been recorded in Burnie. The harbour master (Capt. J. W. Madden) said yesterday it was unlikely any variation would be noticed at Burnie because of its sheltered location and the relatively shallow waters of Bass Strait. He said this shallow water extended for almost 100 miles in the direction from which any tidal waves might come. It was also unlikely that ships at sea in the Strait would notice any unusual waves. Officers on the overseas freighter Sierra, which berthed on Tuesday, confirmed this opinion. They said they had noticed nothing unusual on the trip from Melbourne.

The Examiner, Thursday 26 May 1960
Microfilm records, State Library of Tasmania

Earthquakes affect tides in Derwent

The Hobart Marine Board reported yesterday that tides in the Derwent Estuary were still rising and falling erratically as a result of the recent earthquakes in South America. Observation of the tide gauge showed that the tide had been surging in and out fluctuating as much as 15 inches in an hour. "It's almost as if big waves were sweeping in and out of the harbour", said one spokesman. However, no damage has been done and shipping has not been affected.

Man drowns at Wynyard

Well-known Coastal fisherman Peter John Cryan was drowned in mysterious circumstances in the Inglis River late on Tuesday night. He apparently fell from the moored fishing boat Trevor John, while casting off the moorings of his boat, Ruby H. Cryan (30) could not swim. No one saw him fall and none of those nearby remember hearing a splash. His body was seen floating in the river about 20 yards off Fishermen's Wharf. No one had realised he was missing. The body was recovered from the river by Mr Lynn Rooke of Somerset and Mr Norman Hinkler Tavlor (Taylor?) of Wynyard. Artificial respiration was given at the wharf by Dr J M Hunn of Goldie St Wynyard, First Class Const. L B Robertson and Const. E K Lee without success. Cryan was rushed to the Spencer Hospital where efforts were made to revive him. Despite the combined efforts of Drs Hunn, J Coutts and J G Lindsay, Cryan was pronounced dead an hour after being taken from the water. Cryan apparently fell into the water between 11:30 and 11:45 pm on Tuesday. With Mr Taylor he had been casting off the mooring lines of the Ruby H to allow the craft to catch the high tide for a trip along the Coast to Devonport. The Ruby H was to be slipped for survey and overhaul.

On board were Mr Rooke who was in charge of the vessel and Ingvald Nygaad, deck hand, of Montello. Cryan was casting off lines at one end of the Trevor John and Mr Taylor was at the other end of the craft. As Ruby H drifted away from the jetty Mr Taylor noticed the body in the water. He immediately called out to the Ruby H's crew and the boat was manoeuvred alongside to pick Cryan up.

An inquest was opened before Mr C V Drake at Wynyard yesterday for evidence of identification. It was then adjourned to a date to be fixed. Cryan, a single man who lived at the Federal Hotel Wynyard, had been a commercial fisherman for most of his life. In recent years he was involved in several Bass Strait searches and rescues. His boat was out for several days seeking survivors after the Wilwatch disappeared and he also assisted in the search for the fishing vessel Chance, which is presumed to have sunk with the loss of two lives in August 1957. On another occasion the Ruby H towed a disabled ketch more than 80 miles through heavy seas to safety.

The Advocate, Friday 27 May 1960
Microfilm records, State Library of Tasmania

N.W. alerted for 'Tidal Wave'

The broadcasts had some remarkable results. At the factory of Australian Titan Products at Blythe, employees with cars moved them into the bushy banks above the Blythe River, while others who did not have vehicles took to the hills surrounding the factory. They did not come down to resume work until after the 3 pm 'deadline'. At the A.P.P.M. Ltd's works at South Burnie, employees also hastened to move their cars to higher ground, but work in the mill went on as usual. In Burnie and other Coastal towns, dozens of residents loaded valuables into cars or hired taxis and travelled to hill suburbs to sit out the afternoon. Schools made arrangements for children to be marched to safety or evacuated by bus should the necessity arise. At least one school moved its pupils out of their classrooms. At the Burnie General Hospital, night staff who were sleeping in ground quarters at the nurses' home were awakened, and infants and patients were placed in position so that they could be quickly evacuated if necessary. During all this time, police stations and radio stations were hit by a barrage of telephone inquiries from frantic persons seeking the latest news on the 'wave'. School switchboards also ran hot from calls from parents wanting to know where their children were and what was being done towards their safety. Many business houses closed altogether and others were busy stocking up with sandbags. A women's hairdresser reported that some of her customers wanted to go home with their hair still under preparation. At Burnie wharves, vessels in port loosed moorings lines, and continuous radio contact was maintained with Low Head, so that warning could be given and the wharves cleared at any sign of danger. Coastal marine authorities broadcast a warning to ships in Bass Strait, and the small-ships radio alerted the fishing fleet on the West Coast. The fleet, comprising five Tasmanian, and five Victorian craft, left pots and nets down and hastened to Woolnorth for shelter. Coastal police who had travelled to Burnie for a regular police lecture were put on duty and the lecture postponed. They remained on duty till late in the afternoon. Early last evening, the officer in charge of the

North-West Police District (Supt G. D. Mackey) made a broadcast over radio 7BU outlining the situation. Supt Mackey said tide gauges at Burnie had shown no appreciable rise, but a sudden surge had been recorded at Ulverstone, where despite the fact that the tide was going out, the Leven River rose about a foot shortly after 3 pm. At Devonport the local broadcasting station also issued several warnings throughout the day to shipping in Bass Strait and near N.W. Coast ports. Graziers were also warned to move their stock to safety. Police said they kept an eye on the tide during the afternoon. Postmasters at Hawley and Port Sorell were asked to advise people to secure fishing and pleasure craft. The Devonport Marine Board launch was taken to sea to pass the warning to the dredge J H Astell and other smaller boats. Schools were asked to retain children until 3:30 pm, by which time it was expected any danger would be over. The Harbourmaster (Capt. Russell) said later there was no abnormal tide or weather at Devonport. Wright's Island to the east would deflect any big sea. At the narrow entrance to the harbour a wave of 4 ft. would gradually diminish to a few inches when it reached the seining basin. At Penguin a number of residents along Main Street went to higher levels yesterday to avert the expected tidal wave, after being alerted by the local police. At least one shop closed and employees of others were allowed to leave until the all clear was given. In some cases residents took their domestic pets with them. Several shops removed goods from their entrances. Sulphur Creek residents living along the Bass Highway also were warned by the police and joined Penguin residents on high ground above the township. But the wave did not come . . . . . .

The Mercury, Friday 27 May 1960
Microfilm records, State Library of Tasmania

Tidal Wave warnings broadcast in North-West Tasmania yesterday afternoon sparked off a full-scale alert and caused panic in schools and business houses. Hobart and other parts of the South also had a scare. A broadcast warning that a tidal wave, thought to be of considerable size, might be bearing down on Tasmania from the East, was made soon after noon in the North-West. It followed receipt in Hobart by the Telecommunications Branch of a tidal wave warning believed to have emanated from New Zealand. Police warned persons in low lying areas to secure stock and boats and to protect their property. In some areas car loads of persons moved into the hills, taking their valuables with them, and shops and many centres closed. Car parks near Associated Pulp and Paper Mills and the Australian Titan Products factory at Burnie, normally crammed with parked cars, were deserted as employees moved their vehicles to higher ground.

Took to The Hills

At the Titan factory some employees took to the hills behind and stayed there till late in the afternoon. But no wave arrived, although a sudden surge was reported in the Leven River at Ulverstone, where the tide, on the way out, rose suddenly by about a foot at 3 pm. At Burnie the tide gauge did not report any appreciable rise. Arrangements were made to clear pupils from schools if the arrival of a big wave became imminent, and at least one school was evacuated.

Switchboards at schools, police stations, and radio stations were swamped with calls from frantic persons wanting further information. The District Superintendent of Police (Supt G. D. Mackey) broadcast over 7BU late in the afternoon explaining the situation. Hobart's scare followed a flood of rumours which developed from well-intended and sound advice from the police that people on the eastern and south-eastern seaboards should take precautions against possible flooding from the surge of a tidal wave then reported to be sweeping across the Pacific. The police warnings were based on reports from the Navy and other sources that there had been unusual activity at Balboa and at Christmas Island, the effects of which could be felt on the East Coast of Australia between 1 pm and 3 pm. All sorts of wild tales floated around Hobart and suburbs, and one of them — that waves 10 ft. high could be expected in the Derwent around 3 pm and that Kingston Beach and nearby settlements could expect substantial flooding — caused near-panic in those areas. One family evacuated their home to get to high ground and took all their household pets with them, including birds in cages. At 3.50 pm the Navy received another signal from Sydney giving "All Clear" in Pacific, as relayed from Honolulu.

Police in towns along the East Coast warned residents to secure their boats and prepare for the expected wave. The Hobart Marine Board reported a tide rise of 9 in. at 2 pm yesterday, which was a normal reading for the past three days and compared with the 15 in. on Monday night.

The Examiner, Friday 27 May 1960
Microfilm records, State Library of Tasmania

Panic Follows Report of Big Tidal Wave

Tidal wave warnings broadcast in the North-West yesterday afternoon sparked off a full-scale alert and caused panic in some schools and business houses. A warning that a big tidal wave might be bearing down on Tasmania from the east was given soon after noon. It followed the receipt in Hobart by the telecommunications branch of a tidal wave warning from New Zealand.

Police warned people in low lying areas to secure stock and boats and take steps to protect their properties. In some areas carloads of people moved into the hills, taking their valuables with them, and in many centres shops were closed. Arrangements were made to remove children from schools if the arrival of a big wave became imminent and at least one school was evacuated. Switchboards at schools, police and radio stations were swamped with calls from frantic people wanting more information. At Burnie General Hospital night staff were alerted and arrangements made to move infants and ground floor patients if necessary.

Ships Ready

Vessels at Burnie wharves loosed moorings and the port was in continuous contact with Low Head for any further warning of danger. The District Superintendent of Police (Supt G. D. Mackey) made a personal broadcast from Burnie in the afternoon explaining the situation. Car parks near the Associated Pulp and Paper Mills and Australian Titan Products factory at Burnie — normally crammed with cars — were deserted as employees moved their vehicles to higher ground. At the Titan

factory some employees took to their heels into the hills behind the stayed there till late in the afternoon.

Small Rise

Despite all the preparation, no wave arrived although a sudden surge was reported in the Leven River at Ulverstone. The tide rose suddenly by about a foot at 3 pm. At Kingston Beach, 12 miles south of Hobart some residents evacuated their homes following reports that a tidal wave was about to sweep in. The news was broadcast from all radio stations in a series of police messages warning people not to put themselves in unnecessarily dangerous positions near the foreshore and warning all boat owners to secure their craft. The Deputy Commissioner of Police (Supt Marshall) said yesterday that the police had decided to act after receiving news of the expected tidal wave "from an official source." The message was relayed through New Zealand and Honolulu and said: "This is a tidal wave warning. Another eruption in Chile has caused unusual activity at Balboa and Christmas Island. The intensity of this wave cannot be predicted. It is estimated that it should pass through the area between Fiji and New Zealand in about one hour. The estimated speed of the wave is between 400 and 600 m.p.h."

Tide Watch

At Devonport several warnings were broadcast throughout the day to shipping in Bass Strait and nearby N.W. Coast ports. Graziers were warned to move their stock to safety. Police watched the tide during the afternoon. The Devonport Marine Board launch put to sea to pass on the warning to dredge J. H. Astell and smaller boats. There were no changes in the sea around Tasmania's North-East and East coasts either. Low Head, Eddystone and Swansea reported that there were no changes in tides throughout the day. At Flinders Island some slight change was noticed in Wednesday's tides, but none was felt yesterday.

The Mercury, Saturday 28 May 1960
Microfilm records, State Library of Tasmania

Fierce wind puts coast radio off the air

Fishermen at Binnalong Bay, on the East Coast had a busy time yesterday, making their boats secure against an expected big sea. One fisherman said last night, "It looked as if were in for the tail of the tidal wave sweeping across the Pacific and we expected a big sea." The fishermen did not take any risks and secured their boats with extra mooring lines and anchor chains. However, at high water the expected big sea had not eventuated and last night it was quite calm at Binnalong Bay. "But I would not like to be out there tonight," the fisherman said. It was unlikely, he said, that any boats would go out again before the end of the month . . . . . .

The Advocate, Monday 30 May 1960
Microfilm records, State Library of Tasmania

Among precautionary measures taken last Thursday during the tidal wave scare was the evacuation of pupils from some Coastal schools near the coastline. Pupils, before being released from one school, were warned to go to their homes immediately. Consternation was caused when it was later learned that the children had congregated on a nearby beach to watch the wave come in.

Cochran and Wilson (2007)

The DB-2 core was collected at a bend in the stream [at Dunckels Beach], a point that the landowner [Mr Hansson] identified as the extent of saltwater inundation during a tsunami in the early 1960's. This landowner recalled the tsunami flowing up the stream and inundating the paddock with saltwater, which later killed the grass (Hansson, pers. comm., 2006). The tsunami also caused damage to the Adventure Bay jetty, overtopped a nearby bridge and left kelp on the road. This tsunami was not significant enough to deposit sediment at the Dunckels Beach site.

14 November 1953

Report summary

Nine year-old David Moarse was drowned when a huge wave estimated to be eight foot (2.4 m) high engulfed three children at Mattingleys Beach, Bridport. The origin of this wave event is unclear.

See Figure 1, cover photo and reference 8 in Table 1.

The Examiner, Monday 16 November 1953
Microfilm records, State Library of Tasmania

Boy swept to death by freak wave at Bridport

Nine-year-old David Moase was drowned when a huge freak wave engulfed three children playing on the sand at Mattingleys Beach, Bridport on Saturday afternoon. The boy's uncle, David Roberts, was the same age when drowned near the same spot 20 years ago. David was named after him. The other two children had narrow escapes. The elder scrambled from the foamy water and the second was rescued by his fully clad father. The child drowned was the son of Mr and Mrs Godfrey Moase, of Bridport. He was unconscious when taken from the water and failed to respond to artificial respiration. The wave estimated to be eight foot high formed without any warning and instantly engulfed the three children. Martin Anstee (10) of Launceston was near his mother, Mrs Kathleen Anstee when the wave struck. He was washed out to sea but managed to scramble on to some rocks.

Swept out

David Moase and Randall Trethewie (5) son of Mr and Mrs H Roy Trethewie, Blessington, were swept out to sea in a few minutes. Brought to the beach by the screams of his wife and Mrs Anstee, Mr Trethewie dashed in to the water. He reached both boys but David threw his arms around his head and Mr Trethewie had to push him away. Mr Trethewie grabbed the other boy and had brought him ashore before he discovered he was his son. He was unconscious but responded to artificial respiration. Just at this time Messrs. E Bennett (Bridport) and A J Wilson (Launceston) arrived at the beach. They brought David ashore. He was unconscious and failed to respond to treatment. He was rushed to the Scottsdale Hospital by Mr Bennett and placed in a respirator, but failed to respond. About a year ago Mr Bennett saved a boy from drowning when he got into difficulties in the Brid River. Mr Moase, a chemist, has just taken a position at the Royal Hobart Hospital. The family was to have moved to Hobart in a few days.

Freak wave

Bridport fishermen gave a vivid description of the freak wave. It appeared at the mouth of the Brid River about 4:30 pm with a loud roar and travelled at a speed of 10 m.p.h. It took a zig-zag course up the river as it hit first one bank, and was deflected to the other. The three-quarter mile distance to the fish cannery was covered in a few minutes. On its way the wave picked up a fishing boat, held it against the jetty, destroying about 12 ft. of the structure. The boat was not damaged. As the wave reached the cannery it broke the moorings of several boats, some of which were left high and dry but undamaged. The tide was a third part in the making when the wave struck. The water under the bridge on the Scottsdale–Bridport road rose about 6 ft. and lapped the planking. Mr M McGillivray said the first wave was followed by two smaller waves. The wave appeared to lift out of the sea. At Eastmans Beach, Bridport's most popular beach, the wave travelled about 40 yards, climbed a three-foot breakwater and spread over the lawn. It was about five minutes before the Brid River resumed the placid course which it has followed for as long as Bridport's oldest resident can remember. An inquest was opened yesterday morning by the coroner (Mr H E Spotswood) and after evidence of identification the inquest was adjourned until next Friday.

26 August 1883

Nature of event

On 26 August 1883 an explosion of the Krakatau volcano in Indonesia generated a thirty metre tsunami in the Sunda Strait which killed approximately 36,000 people. The atmospheric pressure wave caused by the eruption was said to be the loudest noise ever heard by man at that time. This catastrophic event was felt in many countries and recorded by tide gauges in remote locations around the world (USGS National Earthquake Information Centre, reference 1053).

See reference 7 in Table 1.

Research summary

Tidal disturbances were observed at Franklin, in the Huon and mud was found in several three feet (1 m) high mounds on the flat in Crowthers Bay (fig. 1).

The Tasmanian, 1 September 1883
Microfilm records, State Library of Tasmania

Tidal disturbance

From our southern contemporary we learn that a curious tidal disturbance occurred at Franklin, Huon, on Tuesday and Wednesday. An inrush of water occurred five knots an hour faster than the usual rapid rise and fall, and there has been mud upheaved on the flat in Crowther's Bay. Several mounds of mud there are 3 ft. high.

The Tasmanian, 15 September 1883
Microfilm records, State Library of Tasmania

Hobart weather report for August 1883

Shocks of earthquake have been felt in the same part of the colony as previously visited. The most notable shock, the strongest that has been felt, and nearly simultaneously, was that of the 30th, over the whole of the disturbed district, a little before and after 9 pm of that day. There was a tidal disturbance at the Huon on the 28th and 29th, the tide coming in with great speed and force, throwing mounds of mud up in several places 3 ft. high.

Papers and Proceedings of The Royal Society, 1883, Ix, State Library of Tasmania

September monthly meeting

Shocks of earthquake have been felt in the same parts of the colony as previously visited. The strongest shock yet felt occurred, nearly simultaneously, over the whole of the disturbed district, a little before and after 9 am on the 30th. There was a tidal disturbance at the Huon on 29th and 30th, the tide coming in with great speed and force, throwing up, in several places mounds of mud 3 ft high.

13 October 1874

Research summary

On 13 October 1874 an unusual ebb and flow of the tide in Port Davey was witnessed. It was then followed by a local earthquake that was felt in Hobart Town and aboard a ship in the waters of Port Davey. If this report is correct it is unusual to have a tsunami occurring before an earthquake and therefore the two events may not be linked.

See Figure 1 and reference 6 in Table 1.

The Examiner, Thursday 29 October 1874
Microfilm records, State Library of Tasmania

Earthquake and tidal wave

We (H. T. Mercury) are informed by Captain Carver of the schooner Kingston that arrived here yesterday, that at 2 p.m. on the 13th instant, and immediately after his arrival from Hobart Town, a shock of an earthquake was felt at Port Davey, and houses being severely shaken. The shock was also distinctly felt on board the schooner, which was lying a short distance from the shore. The inhabitants of the port informed Captain Carver that on the morning of the 13th, and just before the arrival of the schooner and the occurrence of the earthquake, a tidal wave ebbed and flowed.

Corroborated in:
West Coast Times, Issue 2849, 11 November 1874, Page 2: *Latest news from Australia and Europe*

15 August 1868

Nature of event

Between 8 and 15 August 1868 a number of earthquakes took place with magnitudes as significant as 8.5 on the Richter Scale. In Northern Chile, two great earthquakes on 13 August were particularly devastating as they generated catastrophic tsunamis that affected the entire Pacific Rim and lasted two to three days (USGS National Earthquake Information Centre, reference 415).

See reference 5 in Table 1.

Research summary

Prisoners carrying shingles from the bush to the jetty at Risdon witnessed the ebb and flow of tides that rose to

heights of nearly one metre. Additional eyewitness accounts at Circular Head, Hobart Town and Flinders Island were recorded.

The Mercury, 20 August 1868
Microfilm records, State Library of Tasmania

Tidal wave

Our Sydney telegram informs us that an excessive rise and fall of tide apparently from volcanic action took place on Saturday and Sunday, at Sydney and Newcastle, causing great alarm about the shipping. The Balmain steam ferry-boat dragged from the wharf with great violence, snapping three ropes; one steamer was completely stopped and turned violently round. It would seem that this phenomenon has some connection with the eclipse of Tuesday. We reported it as having been observed both at Risdon and down the river on Saturday afternoon. It will be interesting to know whether any disturbances of a like kind have occurred in the neighbouring colonies.

The Launceston Examiner, 29 August 1868
Microfilm records, State Library of Tasmania

Tidal wave at Circular Head

On Saturday, the 15th instant, a very remarkable tidal wave was observed at Circular Head — the ebb and flow amounting to two or three feet, repeated at intervals. It appears a similar occurrence was noticed at Sydney and Hobart Town on the same day. During the great earthquake at Lisbon on 1st November 1755, the earth wave was propagated far enough to shake the waters of the Great Lakes of Canada, and the sea around the West Indian Islands; and there can be no doubt that the sea was agitated in Australia and Tasmania from terrestrial action beneath it, or adjacent thereto, whence the tremors are propagated to such distances that it is impossible to say in what point the undulations originate — authenticated by data furnished by the Terrestrial Observatory, when in operations some years ago at Hobart Town, and again by Humboldt in Cosmos, whilst Sir Charles Lyell has shown that on an average twenty-one eruptions take place annually in various parts of the globe.

The Launceston Examiner, 5 September 1868
Microfilm records, State Library of Tasmania

The tidal wave

"Only a tidal wave — in other words, a wave, or swell a little higher than usual." I fancy I can hear the majority of this community say, and see them turn to the births, deaths, marriages, murders, robberies, and accidents, or the more important (?) and popular topic of the main line of railway. And thus, is that simple announcement of a solitary wave almost unheeded and forgotten in the whirl of every day existence. There is no Braddonian sensationalism in the title of the paragraph which conveys the fact — nothing to make the great pulsating mass of humanity pause in its hot pursuit for gain or momentary pleasure. "It is simply a tidal wave." Well — tidal waves in former times have produced some very remarkable transformations of the globe, to which the submergence of this picturesque little island of Tasmania, with the complete destruction of all its inhabitants, would be exceedingly insignificant; and lately a tidal wave did that in the Pacific Ocean, the melancholy nature of which the business of life can scarcely have swept from the most superficial minds; and tidal waves of late have been very unwelcome visitors at New Zealand. Now, I have no wish to be thought an alarmist; but I cannot help saying that tidal waves of this description are premonitory symptoms of a terrestrial effort to establish an equilibrium, as the hurricane or cyclone, so often attended with disastrous consequences, are the effect of nature restoring the balance of the air. If the tidal wave that has just visited our shores be due to subaqueous volcanic action, and of which there seems to be little doubt, then there has been an upheaval of the sea-bed somewhere, although it does not follow that "new land" has been thereby formed; for the upheaved portion of the sea-bed, although veiled from our sight, is the theatre of far greater volcanic disturbance than the dry land, and it is well known how active of late have been the centres of subarieal volcanic action. When we pause for a while and reflect upon what would be the consequence in these colonies of a tidal wave, say one hundred feet high, visiting the densely populated and low-lying parts near the coast, we instinctively hold our breath and shudder. Hence, the simple announcement of a tidal wave only four feet in height makes the philosopher suddenly pause in the midst of the busy ongoing crowd, and speculate on the present conditions of this ever-changing planet. He knows that the different configurations of this earth, mountain and valley, hill and plain, have been mainly produced by that most terrible and undying forces in the centre of our earth, which ever and soon gives fearful warning of its existence and activity, and also that it is every ready, with little or no intimation to burst forth and remodel the earth as it did in times of old.

This tidal wave struck the eastern coast of New South Wales on the same day that it reached our shores. viz., the 15th August; but there it rose much higher, and also ebbed and flowed every hour, according to the newspapers, which to say the least of it, is a very remarkable and perhaps unaccountable feature. Here in Tasmania it did not appear to ebb and flow in that manner; it struck the land and shortly subsided.

About ten years ago a similar phenomenon was observed as in the present instance, but a more striking character, at New Town Bay, where, owing to the configuration of the land, the wave becomes suddenly interrupted, and its waters consequently accumulate. On that occasion Dr Milligan, who was then secretary and curator to the Royal Society was appealed to through the press, as well as other scientific observers, for an explanation of the fact, but the appeal was in vain. It was about that time — shortly afterwards, if I mistake not — that a distinct shock of earthquake was felt in Tasmania, which according to many, displaced furniture and broke crockery in many instances. But as the shock occurred in the dead of night the majority of the inhabitants were insensible to it. One other slight shock is said to have been felt about four years ago. About fifty years ago a most decided and alarming shock was experienced in Tasmania, and which is in the memory of many of our old colonists. It occurred on a Sunday morning during the hours of divine worship, and so alarmed the congregation in St David's Cathedral that numbers rushed out in terror. I mention the instances of terrestrial disturbance to show that this part of the

globe, at least is not quite in accordance with the great poet's statement of — "Thou sure and firm set earth." Within fifty years, it will thus be seen, that no less than three earthquake shocks have been experienced in Tasmania, and two oceanic disturbances.

Let us for a moment look out of our window and mark those lofty, sky-probing mountains as they rise in solitary grandeur from the stretching undulating "tiers" — let us note the green valleys at their feet, with their dense forests, and remember that they are the offspring of that dread plutonic power confined in the central cauldron of this globe; but we should also remember that they were fashioned beneath the waters of the ocean. We then will feel how utterly incapable the most expanded and imaginative mind is to comprehend the nature and magnitude of the scale of volcanic operation. Perhaps the meaning sought to be conveyed will be better accomplished through the medium of verse by quoting an extract from an unpublished poem entitled "An Address to Mount Wellington" —

> And thou from ocean sprung; whose oozy lap
> For countless ages nurst thee, after thou
> Wert belched forth a hissing, molten mass,
> From earth's deep. seething, dread plutonic womb!
> Then didst thou fill the void of chasms dire—
> Of awful gulfs, formed by convulsive throes
> That split earth to the core and didst uplift
> Upon they sides the floors of former seas
> And primal forests that ban laid entombed
> For future use of uncreated man.

To come nearer home, Victoria displays evidence of a striking character of geologically recent subaerial volcanic agency, and which if the like were to occur now, the consequences would be appalling to the last degree. Lava, at one time, since the island continent last rose from the deep, burst forth from numerous vents, and overflowed her plains. Here, in Tasmania, similar evidence of recent subaerial volcanic agency is occasionally to be met with on a much smaller scale. It is no wonder, then, that anything which tends to remind us of that central cauldron over which we dwell in fancied security — even though it be by a tidal wave, should bed some pause, and seriously reflect upon the uncertainty of human existence, and the transient nature of all things. — S.H.W.

The Launceston Examiner, 19 September 1868
Microfilm records, State Library of Tasmania

The Royal Society Monthly Meeting — Tuesday, 15th September

The Secretary read the following report forwarded by J. Boyd, Esq., — for the accuracy of which that gentleman vouches by personal observation, and by reports from others of a similar kind, — on the remarkable effects produced by the tidal wave of the 15th August at Long Bay, Tasman's Peninsula:–

Port Arthur, Tasman's Peninsula, 17th August 1868.

Sir — A remarkable phenomenon of tide having visited the shore of this peninsula, the direct cause of which is at present unknown to your correspondent, but which may be owing to volcanic eruption, or to some disorganisation of unusual collision of oceanic currents; however, without further speculating on what might probably be the cause, I take the liberty of furnishing you with a detail of the particulars as observed by several eye witnesses at Long Bay, and are as follows —

On Saturday, the 15th instant, at about nine o'clock a.m., the condition of the tide was low, the dry strand showing for 200 yards from the ordinary full tide mark on shore. Several of the prisoners who were employed in bringing shingles from the bush to the jetty, observed what they mistook to be a heavy swell on at sea, a huge tidal wave coming down the strait from the Brown Mount, towards Long Bay. At the time of its being first observed it was about three or four miles distant. Not apprehending any approach of danger they continued their employment carrying the shingles they had brought from the waggon, and placing them on board a launch moored to the jetty. While engaged in this operation, the shallow waters of the bay received an impetus, and were propelled towards the shore at the speed of between eleven and twelve miles an hour, the water in the bay then gradually and rapidly increased, spars were washed in, and several large gum logs — by no means a buoyant description of timber — one of which was ten feet long, diametre four feet nine inches, and weighing at the lowest estimate three tons, were washed in, while only half the diametre of some was submerged; and the one of which I have given dimensions was driven in rapidly, while only three-fifths of its diametre was covered. Logs that had become embedded in the sands and remained there for years undisturbed, were forced up and drifted in. A launch of forty tons burden was anchored in the bay, and lying head to sea, was driven in dragging chain, cable, anchor, &c., for a distance upwards of 100 yards. The men employed in unloading the wagon at the jetty, seeing the rapidity with which the tide continued rising became alarmed, and as any attempt to reach the shore by running up the jetty was futile, they were directed by the overseer, Mr Hawkins, to jump into the launch, which was securely moored to the jetty by five eights cable chain, and had just complied with the order, when the small T on the north side of the jetty gave way and was washed in. In the meantime, the current of tide meeting with an abrupt interruption from the embankment of the shore, altered its course, and swept round from the south end of the beach to the north in a stream of about 50 yards broad with amazing velocity, carrying 45 yards of a substantially built jetty entirely away, bottom logs, side plates, sleepers, iron rails, &c, &c, were swept clean away and deposited 25 yards out of the direct lines; and had that part of the jetty been built much stronger, it could not have resisted the force of that current. The water having speedily risen above the embankment, rushed on, inundating the land for 60 yards beyond, and two feet above the level of the highest tide mark known to the longest residents on the peninsula. The water having reached this point and acquired a perpendicular height of seven feet from the low water mark, in the short space of four or five minutes now receded instanter, with equal velocity, and the same rushing sound that characterised its coming in, sweeping with its logs, spars, launch &c., &c, seaward, to a distance considerably beyond where they were removed from, and leaving the strand part 600 yards long from the shore, allowing a decline towards the bed of the sea, at the rate of nine inches to the 100 yards, would show a depression of three feet of water below the water mark of the previous low tide. The ..... of the

bay thus suddenly rose seven feet, and lowered ten feet. The time that elapsed from the first appearance of this tidal phenomenon until the waters of the bay were again settled, was no more ..... fifteen minutes. The surface of the water was perfectly calm, presenting no appearance of commotion, beyond the protuberance of the wave. The morning was fine, and as far as the horizon was visible, no indication of any atmospheric agency likely to produce such a result was apparent. The coxwain, Mr Chadwick, who has observed the tides which have visited these shores during the last fourteen or fifteen years states that it is the most remarkable tide he has ever witnessed here; .... he is unable to imagine the actual cause from which it originated. Several of the waves washed upon the shore at irregular intervals during the day, and up to a late hour on Saturday night, the last of which exceeded the height of the one I have described, but came in and went out more calmly, leaving the one I have described the most remarkable of the whole.

I have, Sir, the honor to remain,
Your humble and obedient servant,
Frederick A. Keith

22 October 1859

Research summary

On the morning of 22 October 1859 a local earthquake at Circular Head resulted in a schooner anchored at Duck Bay being moved several feet.

See Figure 1 and reference 4 in Table 1.

The Launceston Examiner, 1 December 1859
Microfilm records, State Library of Tasmania

The earthquake at Circular Head

Sir, — Since my last communication, published in your paper on the 10th inst., relative to the shock of an earthquake in this district, on the 29th October, we have had four more, — one on Sunday last, the 20th, at half past three in the afternoon accompanied by a rumbling noise, with a distinct movement of the ground. The day was clear and warm; the barometre 30 inches. Again on Monday night or strictly speaking Tuesday morning, the 22nd instant, another slight shock was felt; at half past three p.m. a second, and at ten minutes before five in the morning a third. The latter shock was by far the severest ever known in the colony; the whole earth moved like a huge wave, startling the people from one end of the district to the other. The only damage done, yet ascertained, is the destruction of a brick oven on my farm; the fall of a portion of a stone chimney, a part breaking the roof of a stable; the cracking of a chimney on Anderson's farm, at Black River; and a considerable in just to Mr Ford's house at Highfields; and it was observed that the Prince of Wales schooner, lying at anchor at Duck Bay, had the bow rope taut and the stern fastening slack, immediately before the shock, whilst the reverse was the case directly afterwards, showing that the vessel had been moved several feet. Many household articles were thrown down such as candlesticks, jugs &c., and picture frames were lifted out from the wall, and then flapped back to their places with a startling distinctness. The shock was accompanied by a loud noise, and the earth wave appeared to travel slowly: it seemed as if a person on horseback could have kept up with it, though according to Humboldt, it probably moved at the rate of not less than 28 miles in a minute. I have made minute enquires from a great number of persons, and feel satisfied that the earth was propelled from the north; though strange to say, it was not felt at Melbourne nor King's Island, neither at Launceston or Hobart; it would seem to be comparatively speaking local. It however, was sufficiently alarming to cause the inhabitants to become decidedly nervous and strongly apprehensive that a series of shocks only precede a very severe earthquake, though the opposite would appear to be the truth. The people have a great objection to sleep near tall chimneys, and upon the whole feel satisfied that after all a wooden house is far superior to stone. There are some singular features connected with the earthquake; the loud sound, so different to that of thunder, and the knowledge forced upon us for the first time perhaps, that the earth, is no longer to be trodden with safety, though all our lives we had been accustomed to think differently. Yesterday, the 24th, we had a few claps of thunder, and a heavy fall of rain, after a long drought of 23 days. The rain was never more acceptable in this district; the crops had been suffering severely. I am, S.B.E. November 26th.

5 February 1858

Research Summary

On 5 February 1858 an unusual ebb and flow of the tide was witnessed at New Town Bay with enough force to break a yacht from its moorings.

See Figure 1 and reference 3 in Table 1.

The Cornwall Chronicle, 6 February 1858
Microfilm records, State Library of Tasmania

Curious phenomenon

There was a most extraordinary flow and ebb of the tide yesterday in New Town Bay. The tide, which resembles the surfs at Madras, came in with such force as to break the Bishop's yacht away from her moorings, and with the ebb she was taken back again to her station. It is the opinion of many that some subterranean disturbance in the adjoining colonies was the cause of the phenomenon.

The Sydney Morning Herald, 12 February 1858
Microfilm records, State Library of Tasmania

Tidal phenomenon

There was (says the Courier) a most extraordinary flow and ebb of the tide on Saturday, in New Town Bay. The tide, which resembled the surfs at Madras, came in with such force as to break the Bishop's yacht away from her moorings, and with the ebb she was taken back again to her station. It is the opinion of many that some subterranean disturbance in the adjoining colonies was the cause of the phenomenon.

23 January 1855

Nature of event

On 23 January 1855 an 8.0 magnitude earthquake took place in Wellington, New Zealand. At the same time the south coastline of Cook Strait dropped 1.5 m and a flood tide

resulted. During the next several weeks the tides were irregular (USGS National Earthquake Information Centre, reference 415).

See reference 2 in Table 1.

Research summary

On 23 January 1855 an eyewitness recorded the sudden rise and fall of the River Derwent as far as New Town Bay and mistakenly thought it was due to a volcanic event. The event coincides with a major earthquake in New Zealand centred near Wellington.

Papers and Proceedings of the Royal Society, November 1863, State Library of Tasmania

An interesting paper on "Volcanic action in New Zealand" was read by Captain Chesney, R.E., and illustrated by reference to a large map of the North Island. On the conclusion of the paper Archdeacon Davies remarked in reference to the shock of earthquake recorded by Captain Chesney as having been felt 150 miles off the West Coast of New Zealand, on the 23rd January, 1855, that on that exact day a very sudden rise (and fall) of the waters of the Derwent, as far up as New Town Bay, had taken place to such an extent as to wash up a log of wood on the road near Bishopstowe. This, no doubt, was due to a wave having its origin at the seat of volcanic disturbance. In answer to questions from Dr Hall, Captain Chesney stated that several slight shocks had been felt at Hawke's Bay since 1855, but during the whole period of his residence at Wellington . . . . . .

31 December 1852

Nature of event

On 20 December 1852 an earthquake of 7.0 Mw was recorded in Western Java (Hamzah *et al*., 2000). This could not be the source, and there are no recorded events in New Zealand. It could have been a locally sourced tsunami.

See reference 1 in Table 1.

Research summary

On 31 December 1852 at Port Arthur and New Town Bay the tide was seen to rise several feet and fall again twenty minutes later. A similar account was given in relation to Oyster Cove on 30 January 1853. Along the East Coast near Swansea masses of shrimps had been thrown up on the shore.

Papers and Proceedings of the Royal Society,, Nov 1863, January 1854 Vol. II Part III State Library of Tasmania

Mr Clarke also read a note from Mr Courtenay, of Port Arthur, giving an account of a sudden rise of tide there to the height of 4 feet, where it remained about 5 minutes, and then as suddenly retired, about 20 minutes before 12 o'clock on Friday, 31st December last, thermometre being 71 degrees and barometre 29.352 inches. Mr Clarke thought the phenomenon might be connected with submarine disturbance, perhaps with a recurrence of earthquake at New Zealand.

Mr Milligan stated that about five minutes before eight o'clock on the evening of Sunday, 19th December last, he perceived five or six distinct shocks like those of earthquake, at Oyster Cover [sic], D'Entrecasteaux's Channel. Each shock consisted of several oscillations, and they were east and west, and there were some peals of low muttering thunder . . . . .

9 February 1853 — Monthly evening meeting

Dr Bedford drew attention to Mr Courtenay's report of a very sudden and remarkable rise and recession of the tide observed at Port Arthur on the 31st December last, and stated that he noticed a similar occurrence on the same day at New Town Bay. Mr Clarke and Mr Dobson remarked that the surmise of the former of a probable recurrence of earthquake at New Zealand, founded upon this circumstance, had been verified by reports since published in the newspapers (n.b. — not recorded in NZ earthquake records).

The Secretary read a note from Mr S K Davie at Oyster Cove giving an account of a sudden rise of tide to the height of three feet perpendicularly when about half-flood, and of a recession as remarkable, followed by the ordinary rise and fall in its usual course, about noon on the 30th January last. The water is described as having approached in the manner of a Bore.

The secretary read a note from Mr Clarke, transmitting a copy of the Nelson Examiner of the 8th January, in which "a severe shock of earthquake" is reported to have occurred at Nelson, New Zealand, on Saturday, the 1st January *(ed. too late for the Tasmanian wave)*, and drawing attention to the almost contemporaneous occurrence of an unusual rise and sudden recession of tide at Port Arthur on 31st December 1852, as communicated to the Society in a note from Mr Courtenay, at the meeting on the 12 of January last.

Mr Davies drew attention to the fact that great quantities of fish have of late been cast up at various points on the East Coast, killed, as has been reported, by a species of Fungus attacking and spreading round their gills; and also that immense masses of shrimps have recently been thrown up on the sea-shore near Swansea. Sir W Denison observed that such phenomena were common during volcanic eruptions, and that certain striking irregularities noticed in the tides here a few months ago would lead to the belief that some great submarine commotion might be going on in our neighbourhood, a surmise strengthened by the contemporaneous occurrence of earthquake shocks at New Zealand.

Mr Davies bore testimony to the accuracy of the report of a singularly sudden rise and recession of tide made to the Society a few months back by Dr Edward Bedford, he having been on the spot at New Town at the time and observed the fact.

Mr Lochner confirmed the accuracy of the report made to the Society of the extraordinary rise and sudden recession of the tide at Port Arthur, about the 1st January last.

Conclusion

This brief study has found reports of sixteen unusual wave events since 1852. Many coincide with tsunamigenic events recorded in international databases and come from a range of geographic sources, both relatively local and distant, and mechanisms (including subduction zone earthquake events and volcanic eruptions). The origin of the others recorded is currently unknown.

The report gives an insight into the magnitude and frequency of tsunami since European settlement began in Tasmania (~200 year period) and provides a valuable tool for further research.

The limitations of the research should be appreciated:

- It is quite likely that there are gaps in the historical record, such as the time interval between 1883 and 1953.
- A near 200 year record is probably not long enough to record the full range of events that are possible from the various potential sources. This has implications for prediction of future events and risk assessments.
- Since the research work was substantially completed in 2008, there have been additional tsunami events related to the Puysegur Trench (2) and offshore Chile that are not included in the report.

Acknowledgements

The following people or organisations provided valuable assistance to this project, in no particular order:

- Ms Gaye Downes, geophysicist with GNS Science, New Zealand;
- Steve Hutcheon, amateur tsunami researcher;
- Parks and Wildlife Service, Department of Environment, Parks, Heritage and the Arts, Tasmania;
- Mr Jack Rynn;
- State Library of Tasmania, Launceston office.

The project was made possible by funding through the Natural Disaster Mitigation Programme and in-kind support by Mineral Resources Tasmania, Department of Infrastructure, Energy and Resources. The report was edited and reviewed by Carol Bacon (Mineral Resources Tasmania) and James Goff (University of New South Wales). Final editing and preparation for publication was undertaken by Michael Dix.

References

COCHRAN, U. A.; WILSON, K. J. 2007. Tasmanian Paleotsunami Project. *GNS Science Consultancy Report* 2007/222.

DOMINEY-HOWES, D. 2007. Geological and historical records of tsunami in Australia. *Marine Geology* 239:99–123.

LATIEF, H.; PUSPITO, N. T.; IMAMURA, F. 2000. Tsunami catalog and zones in Indonesia. *Journal of Natural Disaster Science* 22:25–43.

RYNN, J. 1994. Tsunamis and their effect on Australia. National Tsunami Workshop, Brisbane, 25 August 1994. *Unpublished report Bureau of Meteorology* 20–24.

SATAKE, K.; KANAMORI, H. 1990. Fault parameters and tsunami excitation of the May 23, 1989, Macquarie Ridge Earthquake. *Geophysical Research Letters* 17:997–1000.

[5 October 2009]

Table 1

Listing of tsunami events

Tsunamigenic					Tsunami Data				
					Written		Instrumental		
Event No.	**Date**	**Cause**	**Source**	**Magnitude**	**Effects**	**Reference**	**Authority**	**Tide Gauge**	**Maximum Wave Height**
1	1852, 31 December	Not known but possibly an earthquake	Tasmania?		"Mr Clarke also read a note from Courtenay, of Port Arthur, giving an account of a sudden rise of tide there to the height of 4 ft where it remained about 5 minutes, and then as suddenly returned, about 20 mins. before 12 o'clock on Friday, 31st December last."	*Papers and Proceedings Royal Society of Tasmania*, 1854, Vol. II Part III, p.481–483, 490 & 512.	Anecdotal		1.22 m (4 feet)
2	1855, 23 January	Earthquake	New Zealand	8.0	"on the 23rd January, 1855, that on that exact day a sudden rise (and fall) of the waters of the Derwent, as far up as New Town Bay, had taken place to such an extent as to wash up a log of wood on the road near Bishopstowe. This, no doubt, was due to a wave having its origin at the seat of volcanic disturbance".	*Papers and Proceedings Royal Society of Tasmania*, 1863, November 3 & 4.			
3	1858, 5 February	Earthquake	Tasmania		"There was a most extraordinary flow and ebb of the tide yesterday in New Town Bay. The tide, which resembles the surfs at Madras, came in with such force as to break the Bishop's yacht away from her moorings, and with the ebb she was taken back again to her station".	*The Cornwall Chronicle*, 6 February 1858, p.5d			
4	1859, 22 October	Earthquake	Tasmania		"The Prince of Wales schooner, lying at anchor at Duck Bay, had the bow rope taut and the stern fastening slack, immediately before the shock, whilst the reverse was the case directly aferwards, showing the vessel had been moved several feet".	*The Launceston Examiner*, 1 December 1859			
5	1868, 13 August	Earthquake	Chile	8.5	"A remarkable tidal wave was observed at Circular Head — the ebb and flow amounting to two or three feet, repeated at intervals". "Several prisoners who were employed in bringing shingles from the bush to the jetty, observed what they mistook to be a heavy swell on at sea, a huge tidal wave coming down the strait from the Brown Mount, towards Long Bay".	*The Mercury*, 20 August 1868, p.2 *The Launceston Examiner*, 29 August 1868, p.5 *The Launceston Examiner*, 5 September 1868, p.5 *The Launceston Examiner*, 19 September 1868, p.3	Anecdotal		0.6–0.9 m (2–3 feet)
6	1874, 13 October	Earthquake	Tasmania		"The inhabitants of the port informed Captain Carver that on the morning of the 13th, and just before the arrival of the schooner and the occurrence of the earthquake, a tidal wave ebbed and flowed".	*The Examiner*, 29 October 1874			

Tsunamigenic					Tsunami Data				
					Written		Instrumental		
Event No.	Date	Cause	Source	Magnitude	Effects	Reference	Authority	Tide Gauge	Maximum Wave Height
7	1883, 27 August	Volcanic	Krakatau		"There was tidal disturbance at the Huon on the 28th and 29th, the tide coming in with great speed and force, throwing mounds of mud up in several places 3 ft. high".	*The Tasmanian*, 1 September 1883, p.1024b. *The Tasmanian*, 15 September 1883, p.1069a. *Papers and Proceedings Royal Society of Tasmania*, 1883, lx.			
8	1953, 14 November	Unknown			"Nine-year-old David Moase was drowned when a huge freak wave engulfed three children playing on the sand at Mattingleys Beach, Bridport". "Bridport fishermen gave a vivid description of the freak wave. It appeared at the mouth of the Brid River about 4:30 pm with a loud roar and travelled at a speed of 10 m.p.h. On its way the wave picked up a fishing boat, held it against the jetty, destroying about 12 ft of the structure".	*The Examiner*, 16 November 1953	Anecdotal		2.44 m (8 feet)
9	1960, 22 May	Earthquake	Chile	9.5	"Supt. Mackey said tide gauges at Burnie had shown no appreciable rise, but a sudden surge had been recorded at Ulverstone, where despite the fact that the tide was going out, the Leven River rose about a foot shortly after 3 pm".	*The Examiner*, 24 May 1960, p.7b *The Mercury*, 25 May 1960, p.2 *The Advocate*, 26 May 1960, p.15 *The Advocate*, 27 May 1960, p.2 *The Mercury*, 27 May 1960, p.1 *The Examiner*, 27 May 1960, p.1 *The Mercury*, 28 May 1960, p.2 *The Advocate*, 30 May 1960, p.4	Marine Board	Hobart	0.46 m (18 inches)
10	1964, 28 March	Earthquake	Alaska	9.2	"Dr Green said unusual tide gauge readings indicated the first tidal wave reached Hobart about 2:30 pm".	*The Examiner*, 30 March 1964, p.2 *The Advocate*, 30 March 1964, p.2	Dr Green, lecturer, geophysics	Hobart	1.46 m (4' 9½")
11	1989, 23 May	Earthquake	Macquarie Island	8.1	"Undersea earthquakes sometimes produce tidal waves but Mr McCue and Ms Clifton (Australian Seismological Centre) both said there was no evidence this had happened in last night's quake".	*The Mercury*, 24 May 1989	Kenji Satake & Hiroo Kanamori	Various	0.3 m
12	2004, 23 December	Earthquake	Macquarie Island	8.1			NOAA	Spring Bay	0.15 m
13	2004, 26 December	Earthquake	Indonesia	9.0	"The water was rising and falling 1.5 m approximately"	Pers. comm., Albert Thompson, Parks and Wildlife Service, Tasmania, 6 February 2008	NOAA	Spring Bay	0.60 m
14	2005, 28 March	Earthquake	Nias Island	8.7	"observed on tide gauges"	ftp://ftp.bom.gov.au/anon/home/ntc/paul/tsunami/reports.html	National Tide Facility Bureau of Meteorology	Spring Bay	c. +0.2 msl

Tsunamigenic					Tsunami Data				
					Written		Instrumental		
Event No.	Date	Cause	Source	Magnitude	Effects	Reference	Authority	Tide Gauge	Maximum Wave Height
15	2006, 3 May	Earthquake	Tonga	8.0	"observed on tide gauges"	ftp://ftp.bom.gov.au/anon/home/ntc/paul/tsunami/reports.html	National Tide Facility Bureau of Meteorology	Spring Bay	c. +0.2 msl
16	2007, 30 August	Earthquake	New Zealand	7.4	"A fisherman who reported a 30 cm to 35 cm tsunami at Fortescue Bay on Tasmania's Tasman Peninsula was grateful for the bureau's warning".	ABC News, posted Sunday September 30 2007, 8:39 pm *The Examiner*, 1 October 2007, p.1 *The Age*, 1 October 2007 *The Mercury*, 1 October 2007 *The Advocate*, 1 October 2007, p.5 *The Mercury*, 2 October 2007, p.2a *The Mercury*, 5 October 2007, p.28c *The Examiner*, 9 October 2007, p.9 *The Examiner*, 10 October 2007, p.9b Pers. comm. Ian Hollingsworth	NOAA	Spring Bay	0.10 m