

*The problem can't be ignored  
.....and it won't go away!*

Looking back at 50 years of  
response to coastal erosion

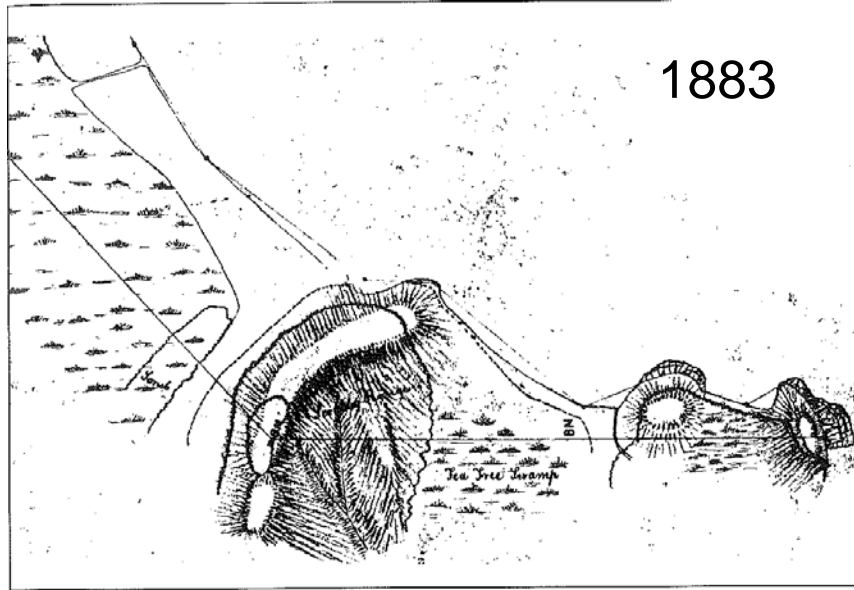
**Professor Rodger Tomlinson**

Director, Griffith Centre for Coastal Management



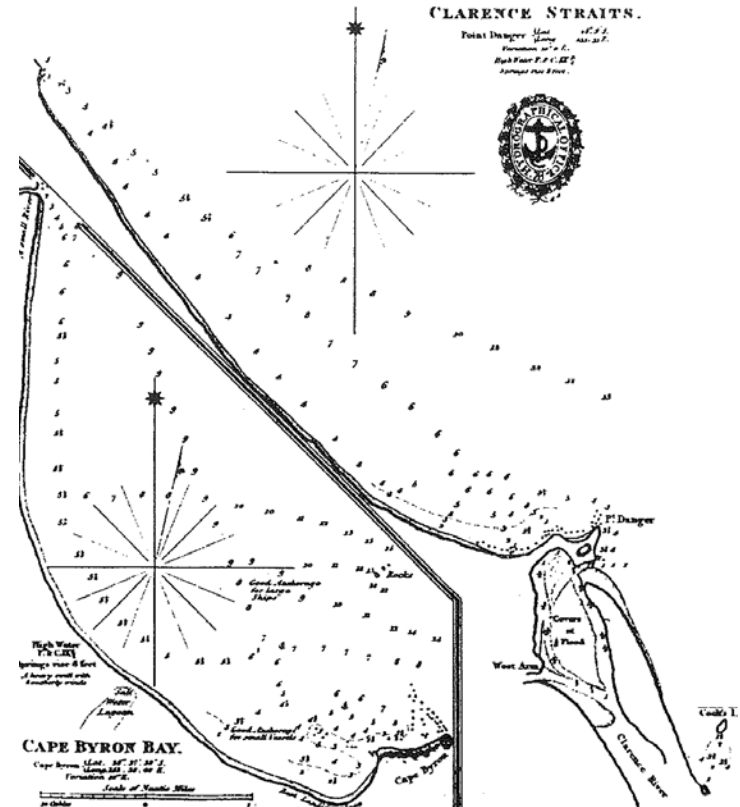
Ignorance of history is not a valid,  
nor credible, scientific position.

*Angus Gordon, 2013*



1828 – Tweed falsely named the Clarence

Acknowledgement for old photos and figures: Robert Longhurst, "Tallebudgera to the Tweed" and "Southport"



1920



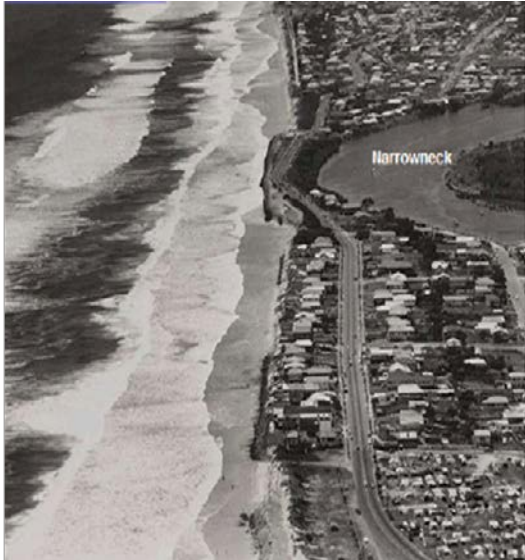
1933



- Intermittent breakthrough at Narrowneck in the 1800s
- 1920s Main Road construction
- 1920s timber walls constructed at Narrowneck .



1950s – 1970s



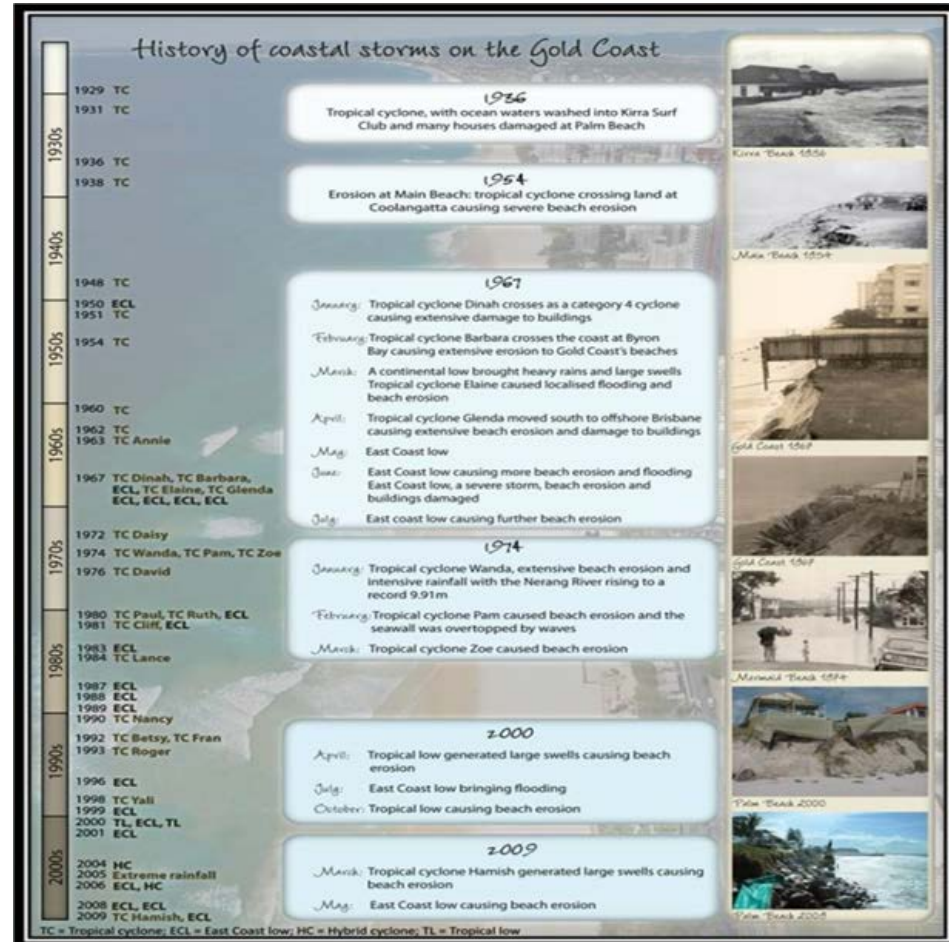
1891



# Extreme Storms

Periods of extreme storminess – 1860s-1890s, 1930s, 1950s-1970s, 2009 - ?

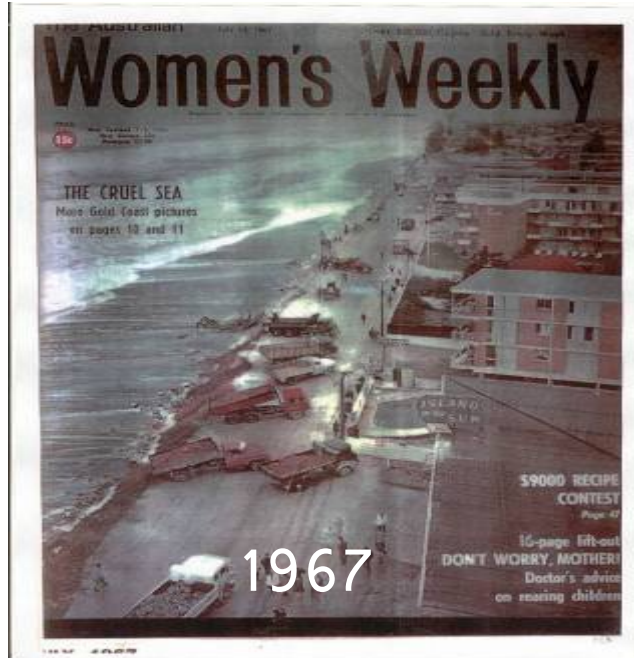
Major cyclones and East Coast Lows 1954, 1967, 1972, 1974





- Coastal erosion and inundation caused during the stormy period of the 1960s and early 1970s caused major damage at Byron Bay, the Gold Coast and Narabeen/Collaroy





- Jan – May 1967: Cyclones Dinah, Barbara, Dulcie, Elaine and Glenda

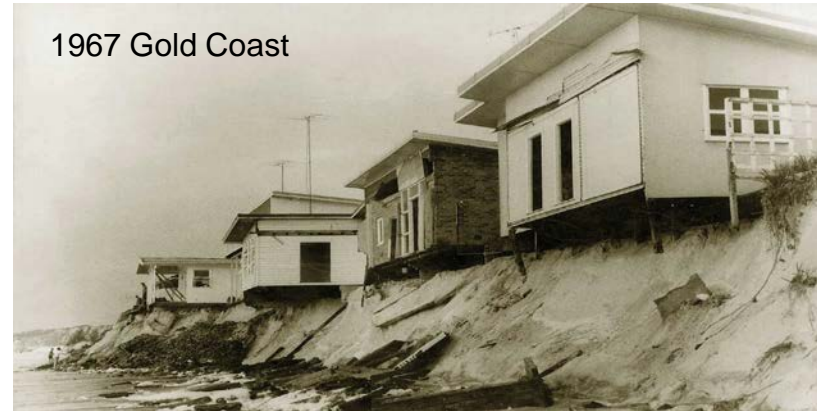
- June 1967: 3 East Coast Lows

- 8 million cubic metres of sand eroded from beaches

- > 1 in 100 year impact



- Houses lost, beach reserve and foreshore lost, extensive damage to public infrastructure
  - 1967 – 3 years for economic recovery of Gold Coast
  - Events ranked >1 in 100 year





- Byron Bay
  - Erosion studies, NSW Coastal Management Guidelines
  - Town seawall (groyne effect at Belongil)
  - Setback lines (planned retreat) incorporated into LEP (1988)
  - Temporary protection works, legal action – ongoing
- Recent activity
  - CMP
  - Court decision to allow temporary structures
  - Plan for seawall as a long term solution (Council will bill the owners)



Figure 65 – Layout Plan – Rock Revetment and Stepped Concrete Seawall option



- Seawalls built to protect high rise after 1967
- 1980s – 2000s multiple studies
- 1990s emergency rock dumped by government
- 1990s – 2000s failed buy back scheme
- 2002 protests against seawall
- 2015 – CZMP formalised seawall option



## Response to June 2016

- Extra rock at street ends
- Geobags at vulnerable area
- Concept of seawall design underway
- Unresolved issues about ownership, public and private land
- Insurance – some paid some didn't
- Under administration – paying for the wall and charging the residents
- Still issues with the new Coastal Protection Act



- Gold Coast
  - 1960s-1970s
    - individuals took action
      - car bodies, concrete blocks, old tyres
    - Army, State and Local govt.
      - Sandbags, rocks



Source: GCCC





- Gold Coast – 50 years of researched and planned action
  - Erosion studies, formation of BPA (1968), Coastal Management Act (1973)
  - Gradual implementation of management plan – seawalls, groynes, entrance training, nourishment (Delft Report)
  - Gold Coast Shoreline Management Plan (2010)
  - Shoreline projects
  - Ocean Beaches Strategy
  - Local Planning Scheme – seawalls, building excavation
  
- Recent storms – 2009, 2012, 2013
  - Palm Beach Shoreline Project
  - Northern Beaches Project
  - Seawall completion
  
- State Government
  - Revitalised Coastal Management Planning and Coastal Hazard Adaptation Strategies



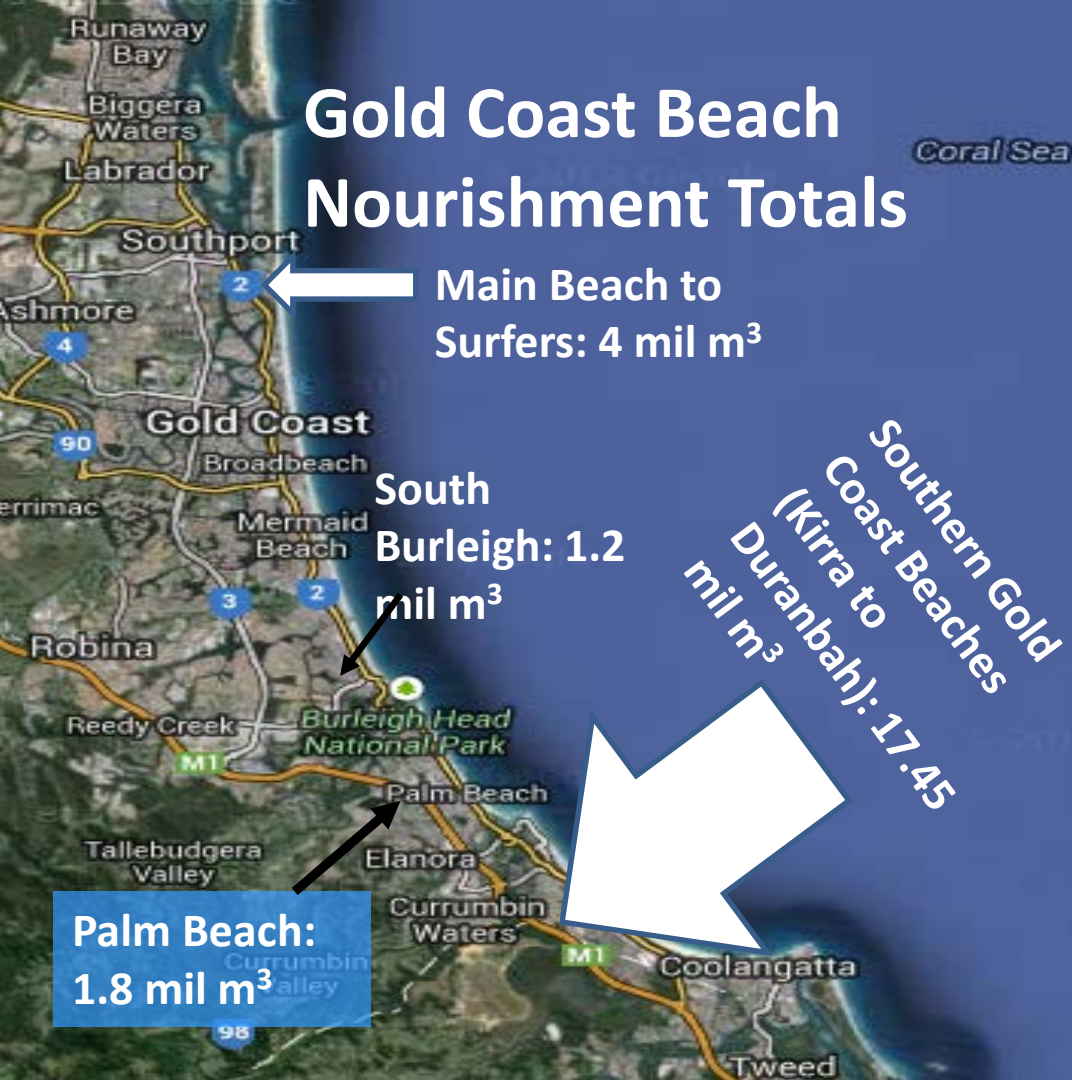
- Past strategies have yet to be tested in 1960-1970s conditions due to calm period
  - Gold Coast Protection and Management designed for 1967 conditions
  - Byron Bay “planned retreat” was not a solution for management of extreme events - assumes property owners will abide by LEP and move. Seawalls.
  - Narrabeen/Collaroy ad-hoc buy-back didn’t protect remaining properties. Seawall ?
- Strategies need legal back-up
  - Byron Bay legal challenges to statutory set-back
  - Gold Coast - responsibility for private seawall
- New financial models needed
  - Buy-back useless unless all properties included at a set price (not market price)
  - Insurance
- Setback (retreat) needs a parallel legal and social framework for transition
  - Our laws of tenure don’t reflect our laws of nature
  - Irrelevant for the Gold Coast
- Future planning based on “a line in the sand” and average long-term projections does not align with climate variability and extremes

2 main approaches to managing beach erosion

- Last line of defence – A-Line Seawall
- Maintain beach width with nourishment



# Gold Coast Beach Nourishment Totals



Palm Beach:  
1.8 mil m<sup>3</sup>



## Often Supposed Roadblocks

- Lack of a range of management options.....NO
- Inability to design solutions (walls, nourishment etc)....NO
- Lack of Planning controls....not really although some need clarification
- Lack of capacity at Government and consultant organisations.....partially
- Lack of methodology for CZMPs/CMPs.....NO
- Lack of tools such as CBAs that satisfy Treasury.....NO

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## Real Roadblocks - Stakeholders resistance





## Real Roadblocks - Institutional

- Lack of a mechanism to **IMPLEMENT** the social contracts required to resolve competing interests - **Line in the sand**
- Detail of what is planned up front, before consultation, not just concept design - consultation realistic and not just “telling” or “workshops” or “focus groups”