ICNZ Insurance Council of New Zealand

# Floods, Slips and Coastal Erosion
# An Insurance Perspective

**Tim Grafton**
**Chief Executive**
**Insurance Council of New Zealand**

**12 February 2018**

ICNZ Insurance Council of New Zealand

# Floods, Slips and Coastal Erosion

ICNZ Insurance Council of New Zealand

# Global as well as local

2017, Hurricane Harvey, Houston,

2017, Hurricane Irma's pathway

**3rd Quarter 2017 largest insured losses for a quarter ever estimated at about NZ$200 billion – the uninsured cost??**

**By 2050, average global flood losses estimated at NZ$75 billion, BUT that does not include windstorm, drought, forest fire costs**

**70% of the infrastructure in cities in 2050 have not been built yet**

ICNZ Insurance Council of New Zealand

# New Zealand historical insured losses

SPEAKER LOGO

- nationwide insured costs of extreme weather events in past 5 years:

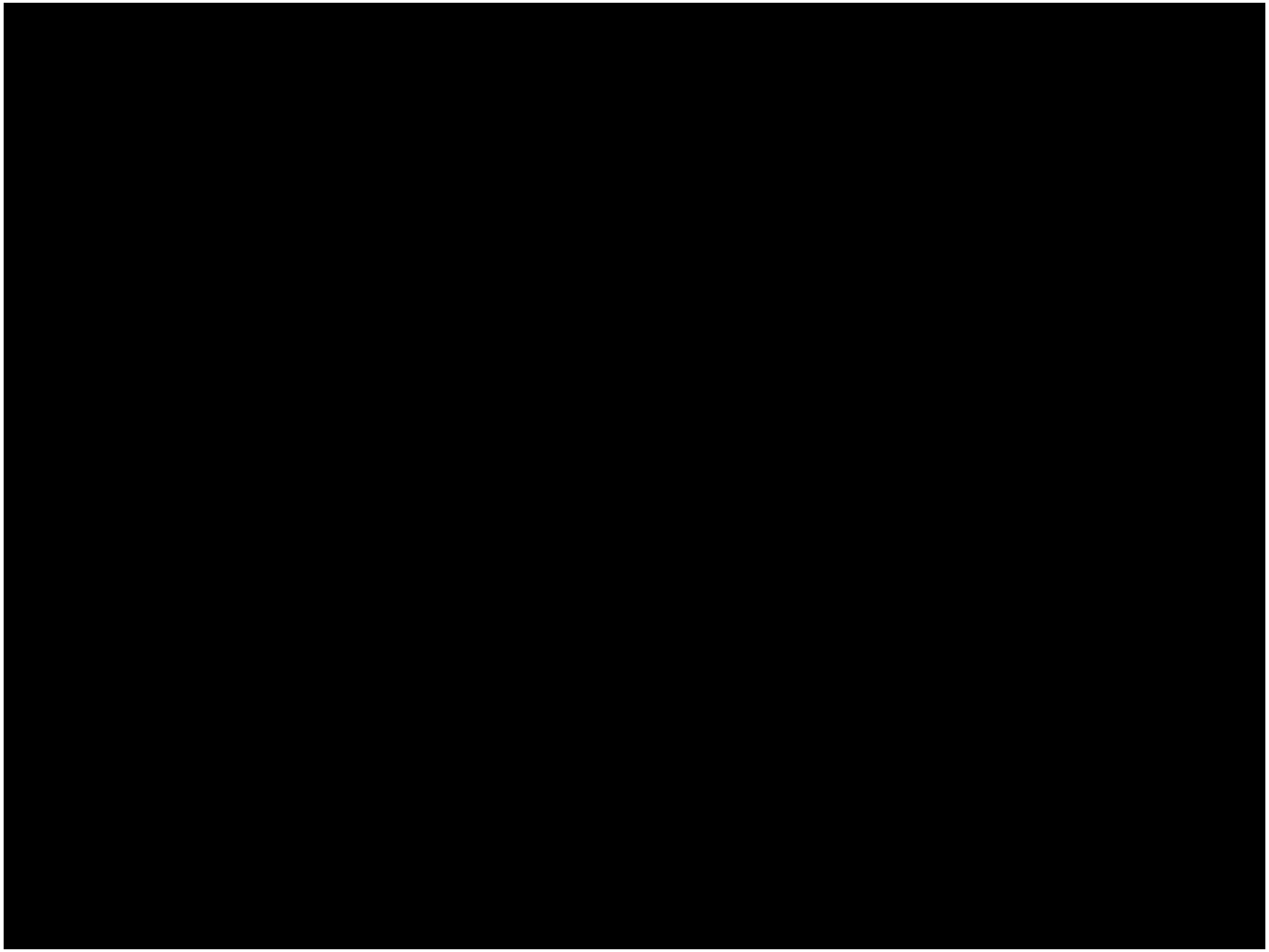
| Year | Insured Loss |
|---|---|
| 2013 | $175m |
| 2014 | $150m |
| 2015 | $115m |
| 2016 | $52m |
| 2017 | $242 m |

**Mean loss annual $147m**

- from 2003-2015 insured costs of floods averaged $75m, but Water NZ estimates this at about 40% of the total cost i.e. $190m per annum for that period or about $367m annually for the past five years
- no integrated policy guidance or standards for managing flood risks exists, and communities are constrained by resources and skills to address (Water NZ)
- need for standardised data e.g. land elevation, finished floor levels to provide more granular view of vulnerability and risk
-

ICNZ Insurance Council of New Zealand

# Kaiaua and Thames floods January 2018



Video can be viewed online at https://www.youtube.com/watch?v=CwZklEtYy8c

ICNZ Insurance Council of New Zealand

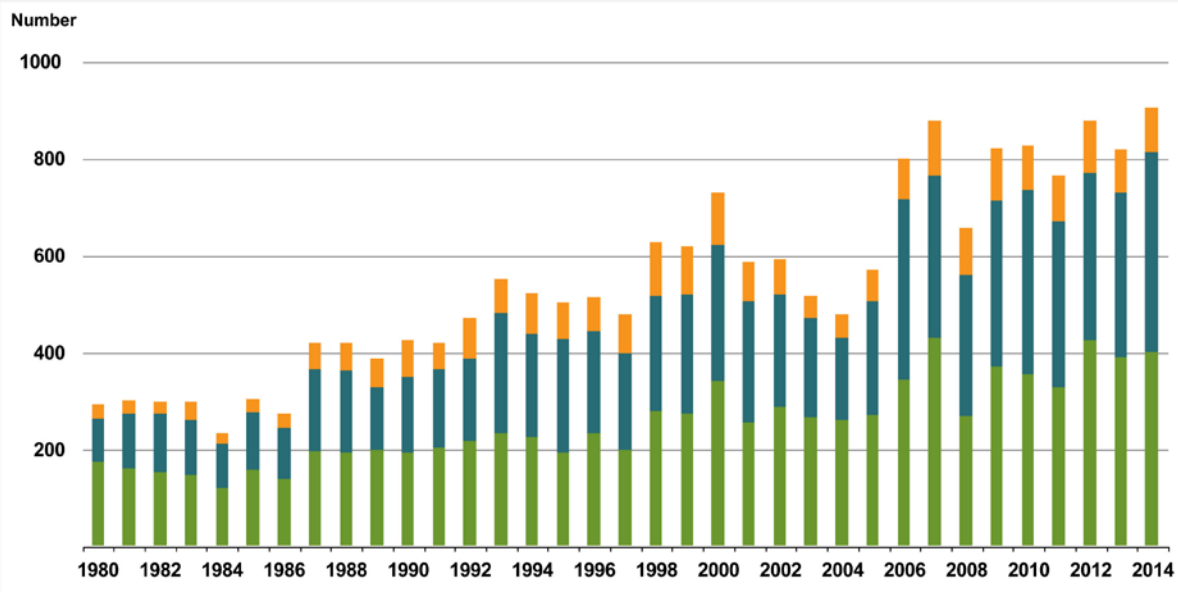
# Historical look back on global weather events

NatCatSERVICE

## Weather related loss events worldwide 1980 – 2014

Number of events

Munich RE



ICNZ Insurance Council of New Zealand

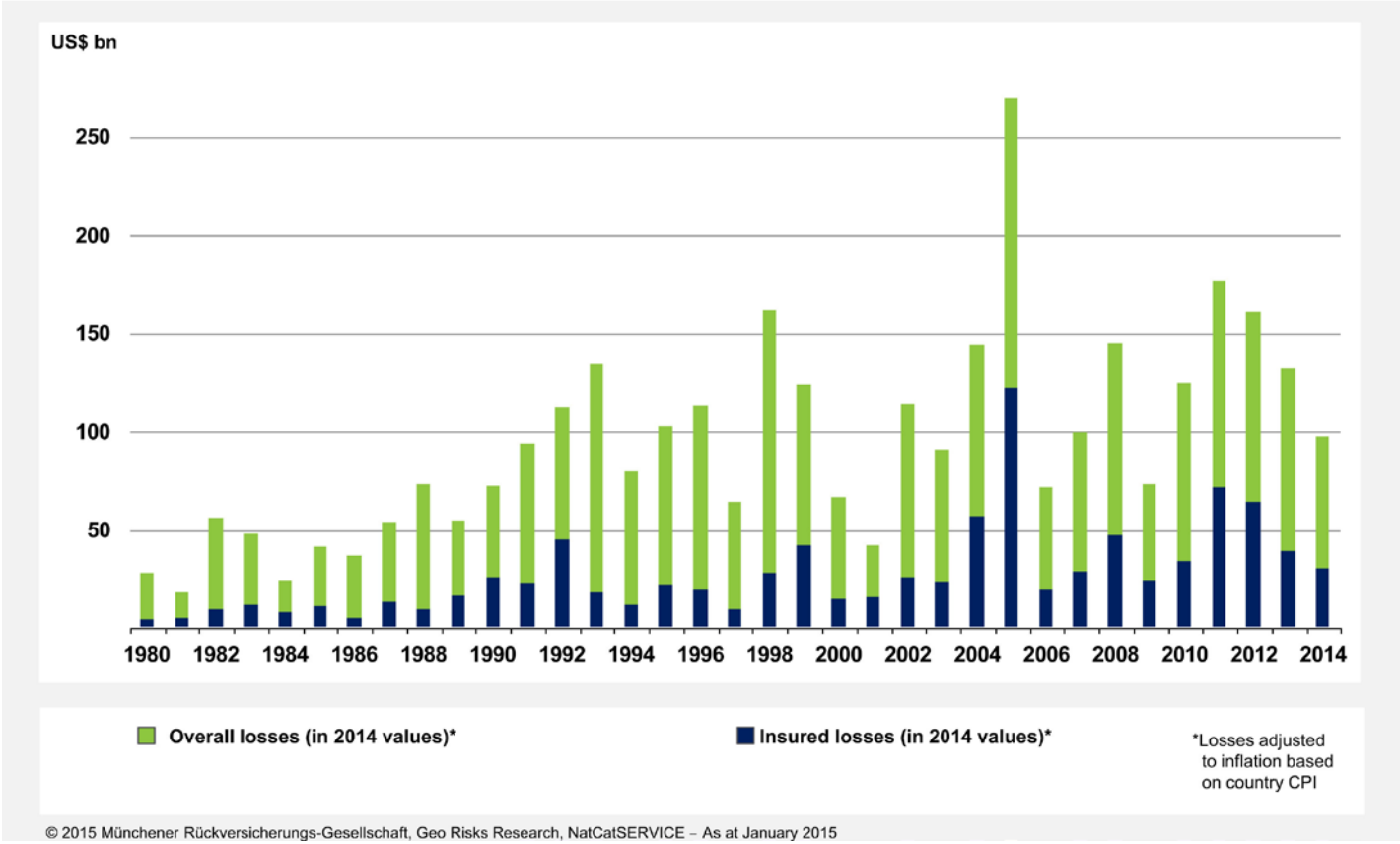
# Historical look back on losses due to weather events

NatCatSERVICE

Weather-related loss events worldwide 1980 – 2014

Overall and insured losses

Munich RE



ICNZ Insurance Council of New Zealand

# Where is this?

ICNZ Insurance Council of New Zealand

# Three fundamentals

**Insurance** transfers risk from the insured to the insurer - it does not reduce the risk.

Unless climate change risks are reduced, insurers will respond through price, increasing excesses, exclusions or refusal to go on risk, thus reducing the availability and accessibility of insurance, but this will occur incrementally.

Property funded by banks who depend on insurance to underwrite the risk on what they loan, so no insurance places all the risk on homeowners and will significantly depress asset values.

ICNZ Insurance Council of New Zealand

# The other 2 risks for insurers and how they may force adaptation

## Risk 1: underwriting

» As discussed thus far, responding to underwriting risk managed by raising excesses, prices through to exclusion and withdrawal

## Risk 2: liability

» Insurers provide liability cover for councils, so if councils failed to act to address known climate change risks which caused damage to third parties, a liability would arise. In Australia, the regulator has said directors can be held accountable for failing in their duty to assess climate change risk. How liability insurers respond may also force change.l

## Risk 3: investment

» Insurers are major investors in equities and assets – a shift to decarbonise portfolios has begun

ICNZ Insurance Council of New Zealand

# Dynamics of insurance for predictable risks

- **traditional insurance** works well for random, uncertain risks that are not correlated by pooling risk and premiums so many pay for the few – assumes diversification as not all properties suffer loss at the same time
- flooding is different it is:
  - predictable; properties on same flood plain flood at periodic, recurrent intervals
  - affects a large number of properties in the same area at the same time
  - leads to adverse selection as only high-risk individuals seek out insurance (where flood is a specified add-on peril),
  - in a flood plain all properties affected at the same time, so diversification by risk pooling no longer applies
- Much the same could be said of coastal and cliff-top properties
- So, ultimately able or commercially non-viable premiums or very high excesses or withdrawal of cover

ICNZ Insurance Council of New Zealand

# How the US responded

- Till the 1960s US had all risks house polices as we have in NZ today
- Frequent flooding events had driven the predictable premium response till insurance became an affordability issue.
- US Govt created NFIP, but premiums not set on a market risk basis, so effectively subsidises people to live in high risk areas
- Prior to the Q3 Houston floods NFIP was US$25 billion in deficit
- Situation made worse bc mandatory to have NFIP to get a home loan. Also, FEMA provides post-event assistance
- Today many owners in these areas rent them out at a discount attracting low income tenants
- Now, they are trying to encourage private insurers back in, but ultimately risk reduction is required

ICNZ Insurance Council of New Zealand

# How the UK responded

- **traditional insurance** works well for random, uncertain risks that are not correlated by pooling risk and premiums so many pay for the few – assumes diversification as not all properties suffer loss at the same time
- flooding is different it is:
  - predictable; properties on same flood plain flood at periodic, recurrent intervals
  - affects a large number of properties in the same area at the same time
  - leads to adverse selection as only high-risk individuals seek out insurance (where flood is a specified add-on peril),
  - in a flood plain all properties affected at the same time, so diversification by risk pooling no longer applies
- Much the same could be said of coastal and cliff-top properties
- So, ultimately able or commercially non-viable premiums or very high excesses or withdrawal of cover

# So, what do we do?

**WHICH ONE IS <u>RED</u>?**

GREEN

RED

BLUE

ICNZ Insurance Council of New Zealand

# Do what insurers do – understand the risk

- **assess risk in relation to objectives** – start from an understanding of what it is we wish to avoid (loss of life, property, business interruption) then assess its likelihood
- **identify the biggest risks** – focus on worst case scenarios in relation to long-term change as well as short-term events
- **consider the full range of probabilities** – bearing in mind a very low probability may correspond to a very high risk if the impact is catastrophic
- **use the best available information** – proven science or expert judgment, a best estimate is better than none
- **take a holistic view** – assess system risks as well as direct risks; models are useful but human behaviour and interactions within a system can produce different possibilities (scenario planning helps)
- **be explicit about value judgments** – they are subjective, so be transparent and subject them to public debate

ICNZ Insurance Council of New Zealand

# Take the long view

Adapt to lower loss probability below current values. Calculate annual expected losses to inform adaptation cost-benefit analysis, consider:

- **how we build** e.g. requirements placed on developers like flood protection or land raising
- **where we build** in future e.g. don't consent where adaptation can't work
- **flood proof/flood resilient buildings**
- **relocatable buildings/retreat** where risk is too high/makes no economic sense to protect
- **upgrade existing infrastructure** to 21st century needs e.g. storm-water drains
- **build new infrastructure** e.g. sea-walls
- **protect existing infrastructure** e.g. dunes, wetlands
- **improve flood warning systems and public education** – so there is time to reduce the impact
- **learn approaches from others** – Rockefeller Resilient Cities, Zurich Alliance 5C-4R, Holland
- **UK Climate Change Act approach –** long-term apolitical framework to address adaptation

ICNZ Insurance Council of New Zealand

# Reinsurance markets and what if for NZ…

- Scenario of combined, uncorrelated disasters e.g. EQ Tokyo/LA, back-to back Miami and Houston hurricanes with **insured** losses over US$100b within 12 months

- Interconnectivity increases risk pool and risk of extreme loss events e.g. hack of cloud storage provider $US53-$120 billion (Lloyds)

- Rapid shift to decarbonised equities, strands assets adversely impacting insurer/reinsurer investment income

- Another major Nat Cat in NZ (Hikurangi Trench subduction zone M8+ and tsunami 30% chance in next 50 years with potential loss NZ$40-50 billion, Alpine Fault M8 30% chance in next 50 years and potential loss NZ10 billion plus)

ICNZ Insurance Council of New Zealand

# Maintaining offshore support

Global protection gap large; potential for large premium uplift, deepening the pool

Advances in science/technology and modelling improves insurers' ability to take on risk

Reinsurance capacity remains strong and Alternative Capital stays for the long haul

Insurers use more of their US$30 trillion of investments to fund resilience

Global GDP US$90 trillion; worst years for weather disaster (2005) 0.5% GDP loss (US$450b);

ICNZ Insurance Council of New Zealand

# Local factors

- Australian presence and ANZ purchasing capacity
- New Zealand well insured, mature market with risks well understood
- High standards of building resilience, has a focus on risk reduction ( a way to go)
- Opportunity for a seamless private/public partnership response to EQC perils – RI market confidence in quick and efficient recovery ex-post
- Regulatory regime encourages offshore insurer/reinsurer interest in the market

ICNZ Insurance Council of New Zealand

# But what if…

## If off-shore risk appetite weakens/capacity more limited…

- Shift away from all perils cover – flood exclusions creating political economy risk for Crown
- Higher sub-limits, premium increases
- Offshore pressure to reintroduce ‘averages’ (needs law change)
- Pressure for greater risk rating; significant premium increases in high risk areas leading to affordability for those on low incomes