

# Climate change and decision-making

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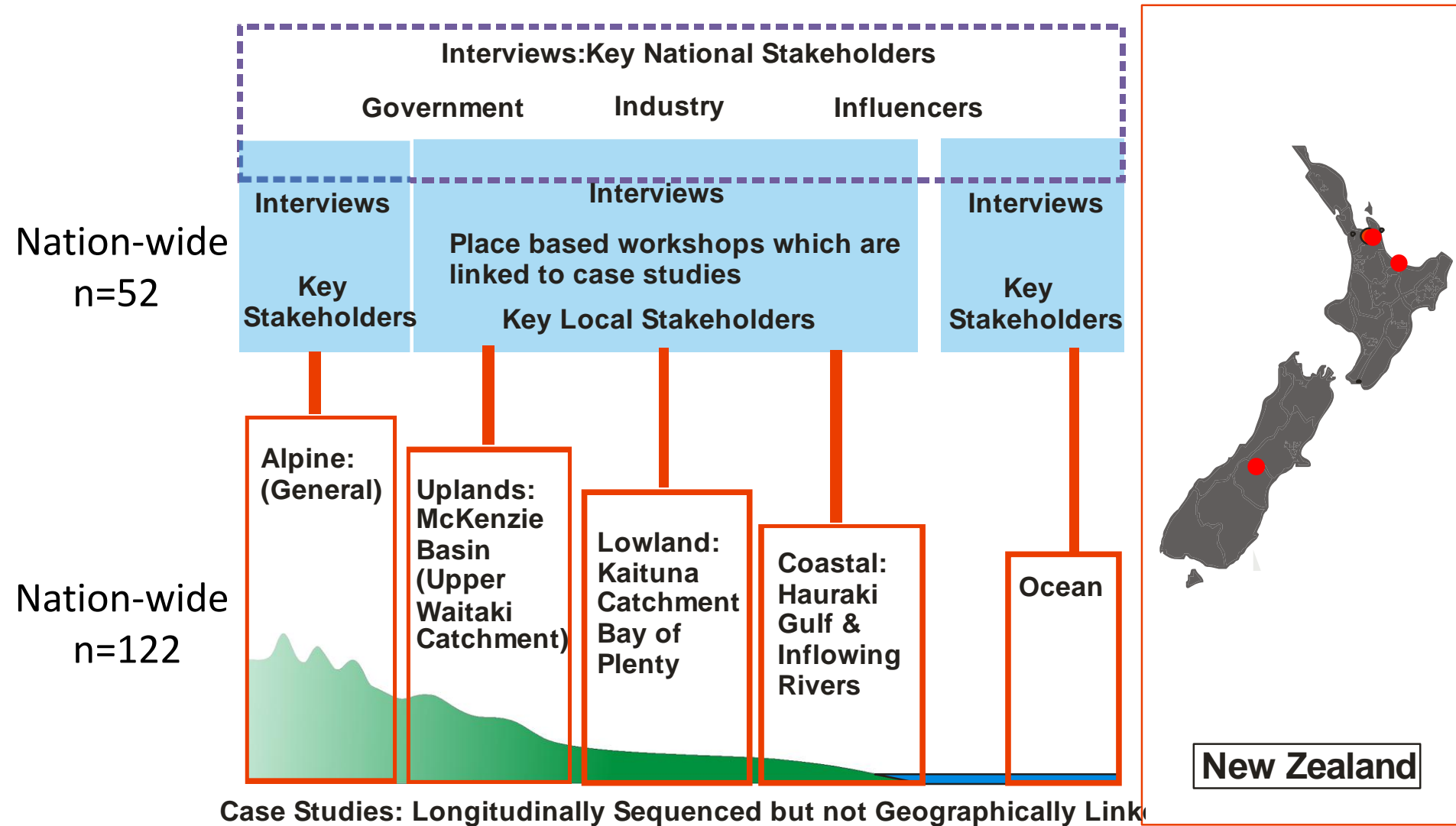
## **AIM**

Generating new knowledge about decision-making across communities of practice relevant for addressing climate risks, including how climate information is used and can be communicated

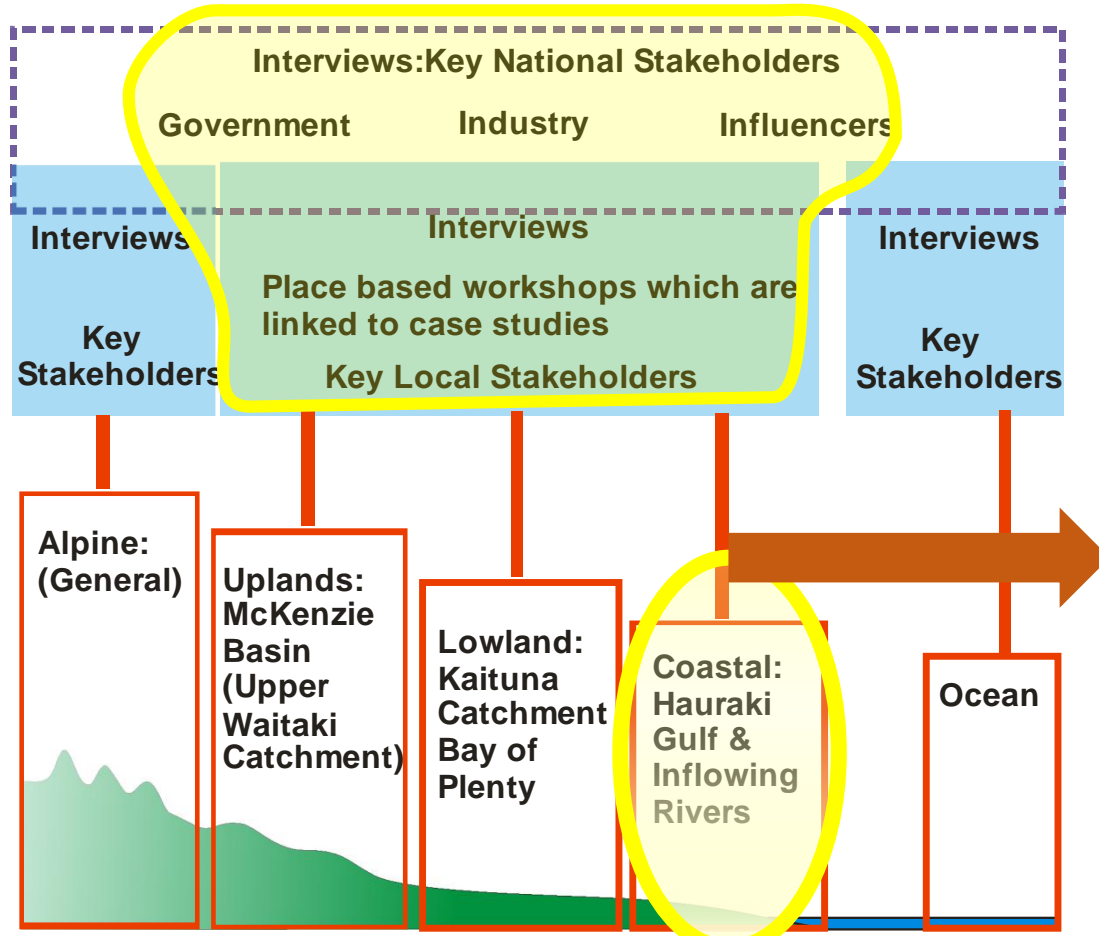
## **WHY?**

Understanding how decisions are made now is critical to supporting and informing future climate changes adaptation.

# Structure and scope of our research



# Your Involvement



Case Studies: Longitudinally Sequenced but not Geographically Link

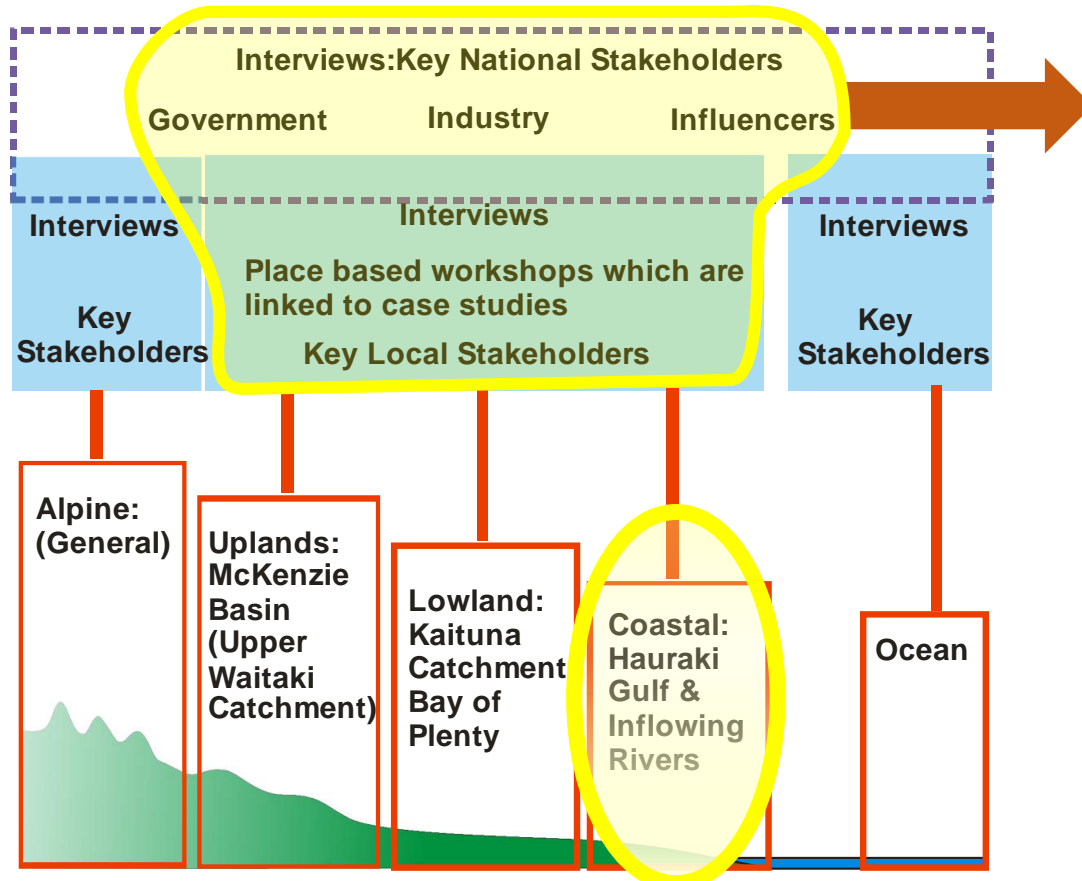
**Involved diverse groups of participants**

**- What is CCI & Research plans**

**- Alignment with your interests**

**- Locate local impacts and implications on aerial photos**

# Your Involvement



Case Studies: Longitudinally Sequenced but not Geographically Linked

## Current practice

- What climate parameters are crucial to your activities?
- How does climate affect your activities?
- What drives your decision making?
- What climate information do you need and in what form?

## Future focus

- How is risk addressed?
- What is your capability?
- What would you do differently under changing climate conditions?
- What decisions will be affected by changing climate?

# Coastal Workshop May 2014

Firth of Thames/Hauraki Gulf and inflowing rivers

**Marine Protection Area**

**Dune Retreat**

**Estuarine Habitat Loss**

**Water Supply from Reservoirs**

**Flounder, Shellfish, Whitebait**

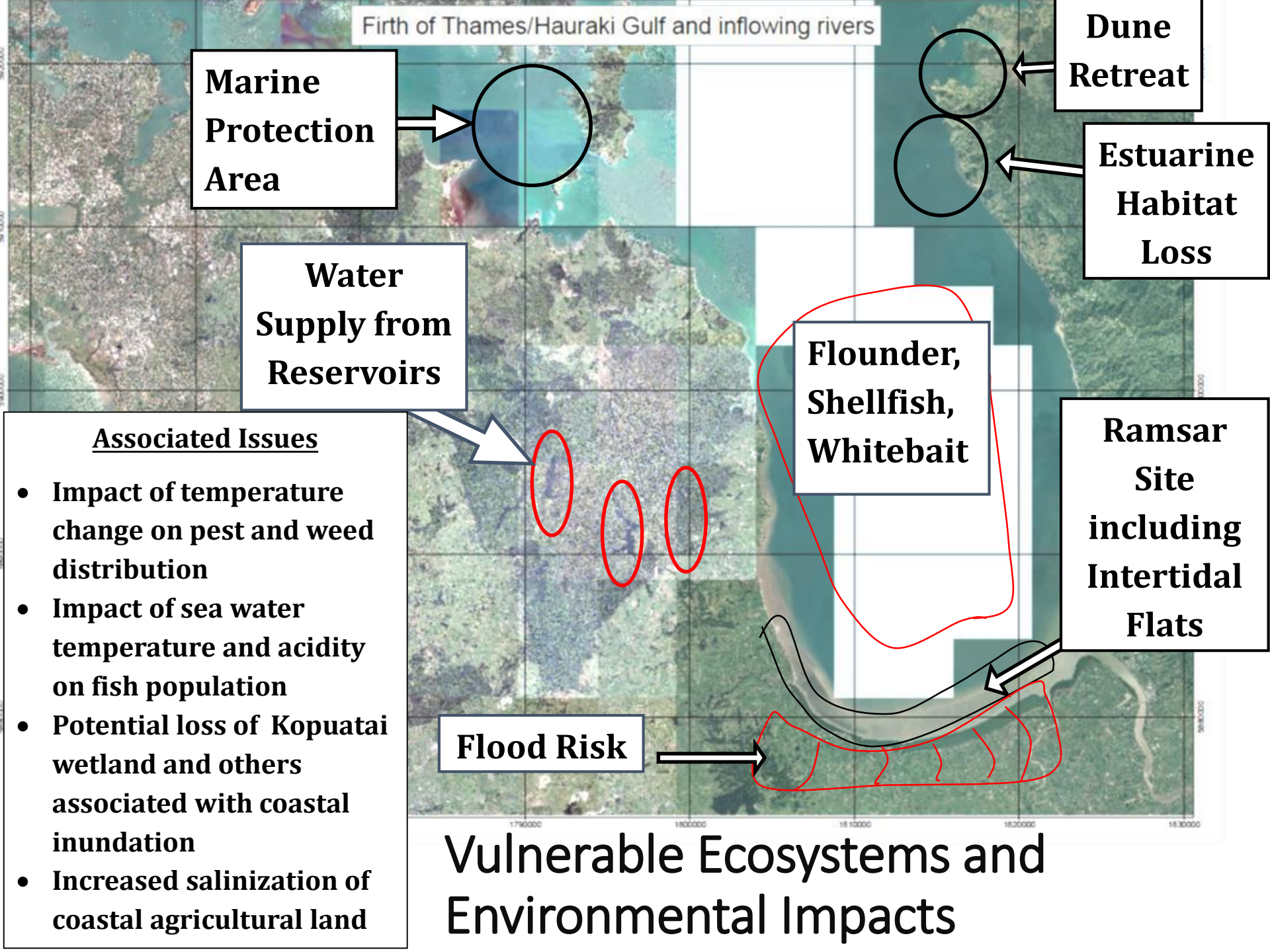
**Ramsar Site including Intertidal Flats**

Associated Issues

- Impact of temperature change on pest and weed distribution
- Impact of sea water temperature and acidity on fish population
- Potential loss of Kōpuatai wetland and others associated with coastal inundation
- Increased salinization of coastal agricultural land

**Flood Risk**

# Vulnerable Ecosystems and Environmental Impacts



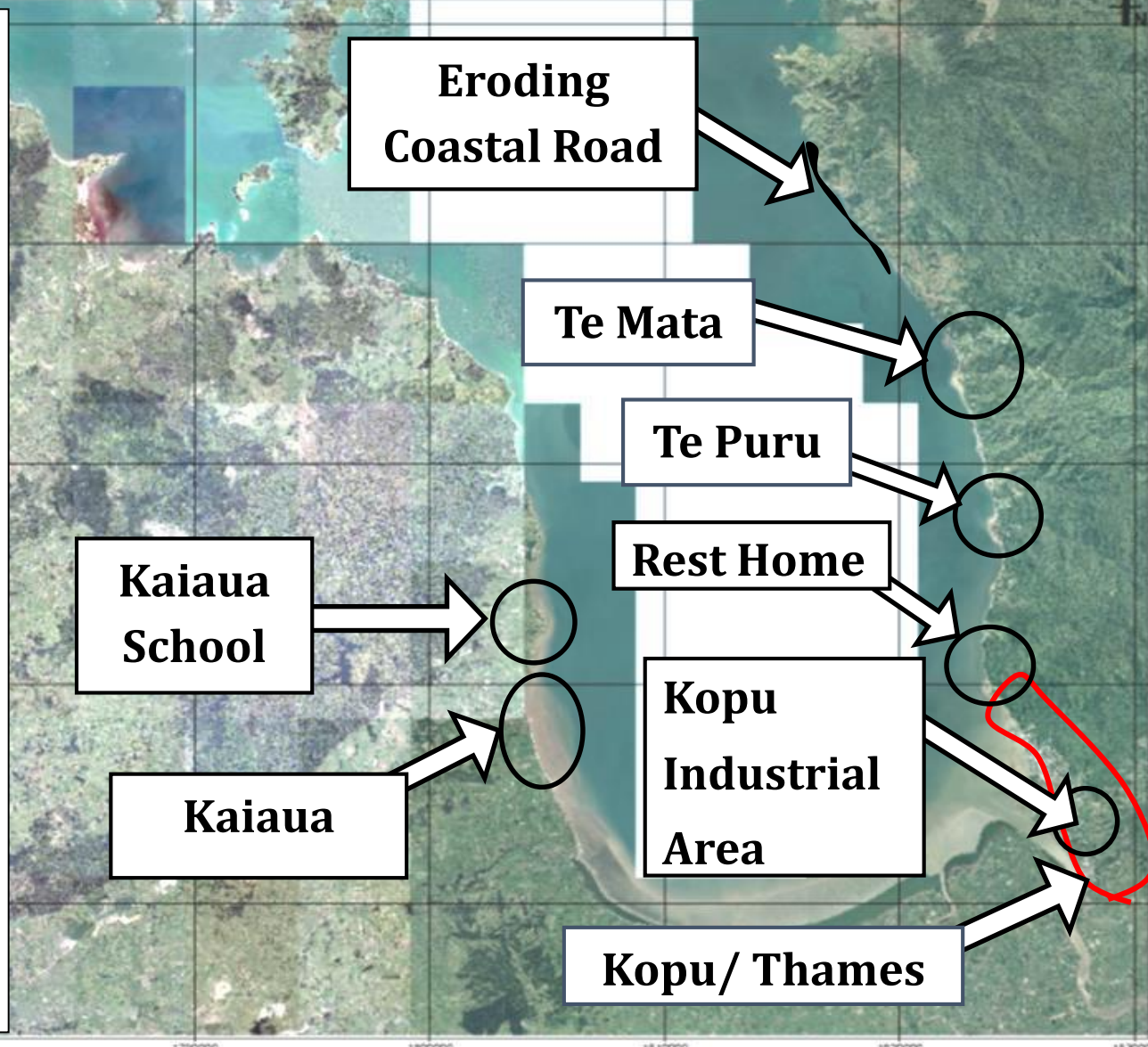


**Associated Issues**

**Septic Tank overflow risk and associated pollution from coastal inundation or shifting water table levels**

**Water table pollution risk linked with closed refuse centres driven by coastal inundation**

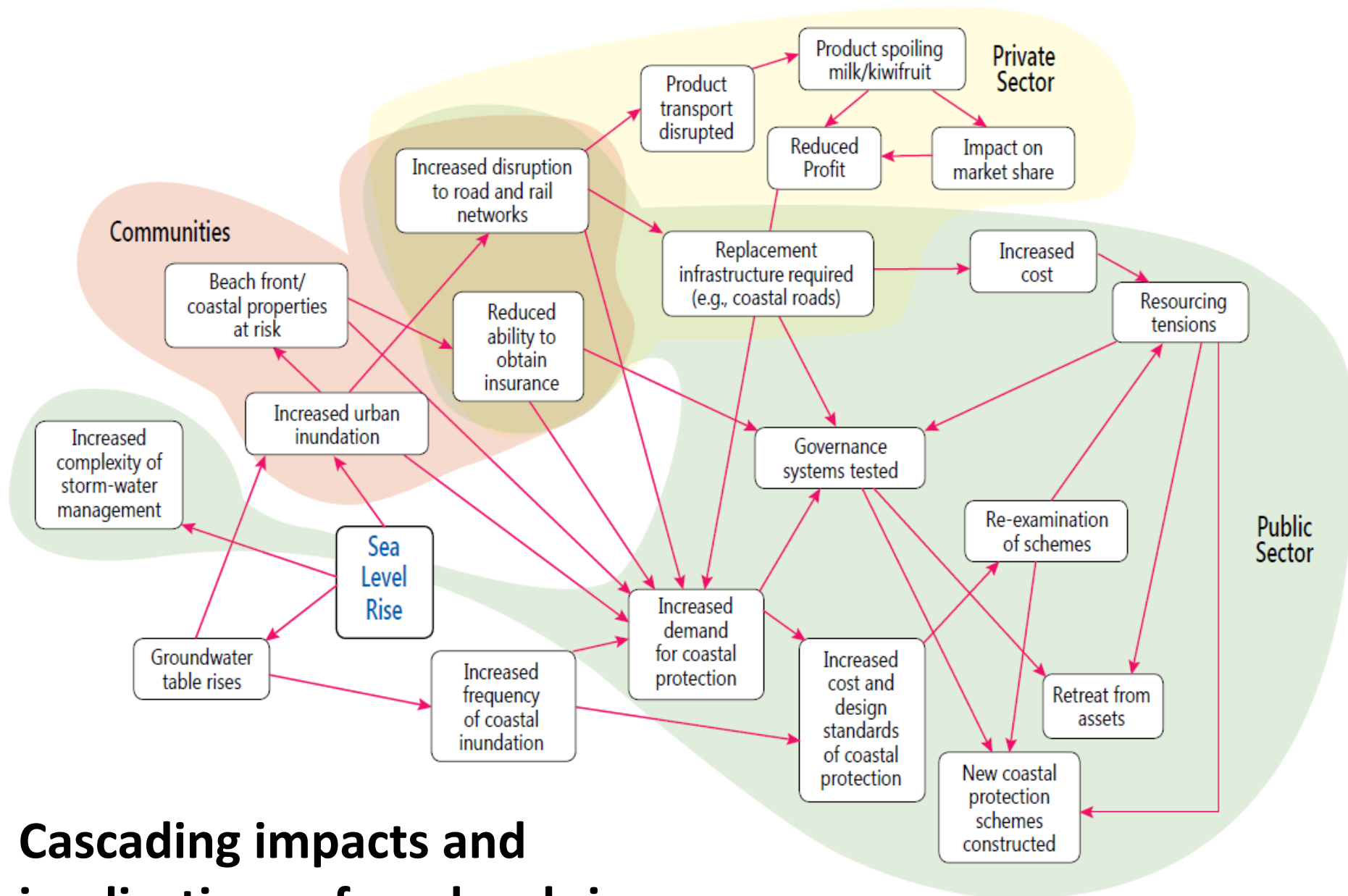
**Impacts on community infrastructure including schools, community halls and churches**



**Vulnerable Coastal Infrastructure**



# Cascading impacts and implications of sea level rise



# For all the case studies

## **Possible impacts on and implications for :**

- Infrastructure - roads, dams, stop banks, sewerage
- Settlements -schools, roads, retirement homes, hospitals
- Existing protection (coastal or flood)
- Businesses, -access to resources (water), risk factors (wind) inundation (river & coastal)
- Livelihoods, - kiwifruit, merino wool, pests

**Interviews 2013-2015**

# Key findings at the national scale

## **Implications of climate change**

- Governance and institutions
- Decision making
- Climate change information
- Capacity and capability

## **Barriers to decisions making**

## **Critical leverage points**

# Governance (rules and organisations)

Fragmented - between organisations and within organisations

Will make it difficult to response to multiple impacts & implications of climate change

Policy settings keep changing

The rules of the game change, its hard to know how to play and difficult to plan long term

Economics (and present cost) dominates

Long term investments are passed over in favour of short term ones

# Decision making

## Different types of decisions and different drivers

### Public Sector:

Regulation &  
Functions

### Private Sector

Production focus  
Economic incentives

### Influencers

Issue or Sector  
based

## Timeframe of decision

Longer timeframes

2-5 yrs

1-5 yrs

## Coping with uncertainty

Issue focused,  
static

Issue focused,  
static

Often not  
considered

Changes to decision making is occurring



# Information

## 1. Understanding future climate change risk

Long term trends , interactions and interdependencies bio-diversity and bio-securtiy challenges, pollinators, plant hybridisation, mangroves ecosystem change, hydrology changes to pathogens and disease water quality .....

Known unknowns - unknown unknowns - interaction interdependencies

## 2. Implications of CC

Lack a systems perspective – fragmented focused on primary sector, lacks social and economic aspects, Freshwater, storm-water wastewater implications?

## 3. Adaptation decision-making

Making adaption decisions – few participants had go this far

# Capacity and capability

- Processes in place to manage risk (formal, semi –formal experienced based)
- Confidence to respond to issues – confident in ability to deal with most known issues, not the less known. Not equip to deal with changing risk
- Ability to accesses resources in-house, in-house/contractors, practical skills

## **Challenges**

**Changing personal networks (people move)**

**Rely on external knowledge/skills**

**Low priority**

**Lacking critical skills (hydrology)**

**Fragmented groups**

**Issues in translation (science to practice)**

# Barriers

**Five kinds of barriers emerged as influencing decision-making;**

- Governance (e.g. leadership)
- Policy (expertise and experience)
- Uncertainty (local data??)
- Resources (completion for resources)
- Psychosocial factors (e,g, contested nature of cc)
- Political commitment and policy persistence

Governance and psychosocial barriers are the biggest impediments to effective decision-making on climate change impacts and implications

# Opportunities

- More joined up thinking - councils, business influencers
- Information sharing – brokers? Influencers
- Innovative solutions e.g. new landuse
- Smart tools for adaptation
- Greater attention to local impacts and values
- Working with financial institutions for long term planning

# Thank-you to all those who participated in this research

