

# Shifting Shores Living with a changing coastline

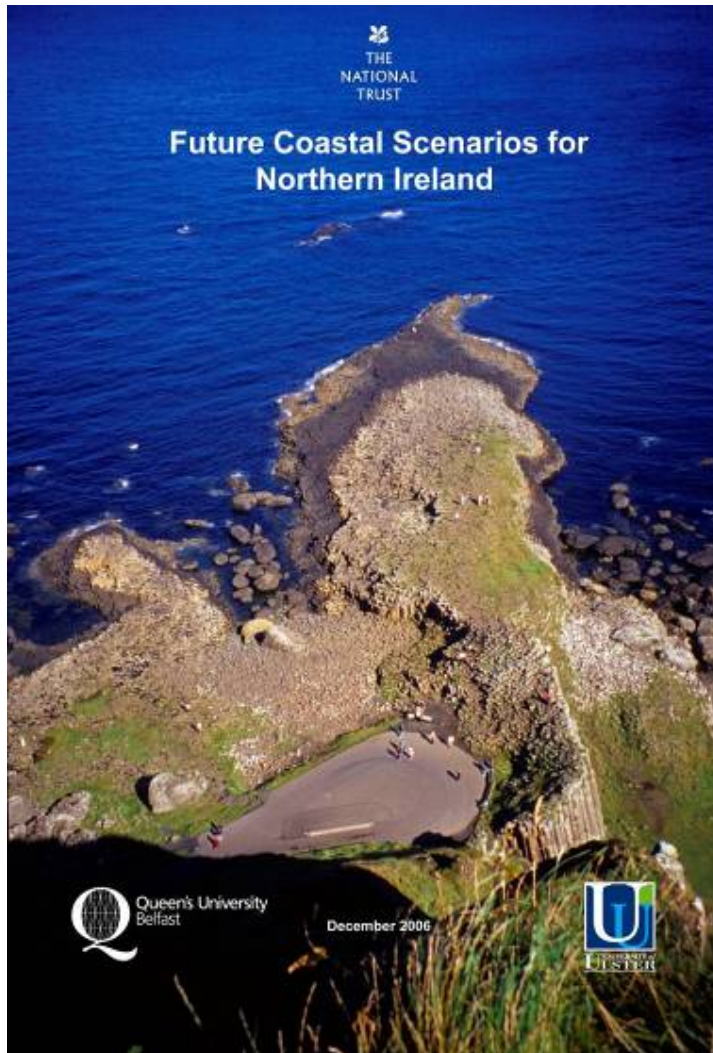


## Shifting Shores Living with a changing coastline

- National Trust coastal research from 2003
- Research covered England and Wales
- Difficulties in extending same research to NI
- Lack of NI-specific environmental data
- A different approach was needed



# Shifting Shores Living with a changing coastline



An expert study of probable NI coastal forcing change and likely implications for 3 key NT coastal properties by 2100AD

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## Shifting Shores Living with a changing coastline



Three sites were chosen based on:

- Exemplars of different types of coastline and coastal features
- Geographic spread
- Availability of existing data

## Shifting Shores Living with a changing coastline

- Using three NT sites as case studies, **Future Coastal Scenarios** examines:
  - How the climate is likely to change this century
  - Impact on Strangford Lough, Murlough and Giant's Causeway
  - What are the implications for NT and Northern Ireland?



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### Key Northern Ireland Climate Changes by 2100AD:

Annual temperatures will increase by between 1° and 2.5° by the 2080s

Wetter winters (20% increase) and drier summers (40% decrease) by 2100

Increased frequency of extreme storm surges and extreme wave events



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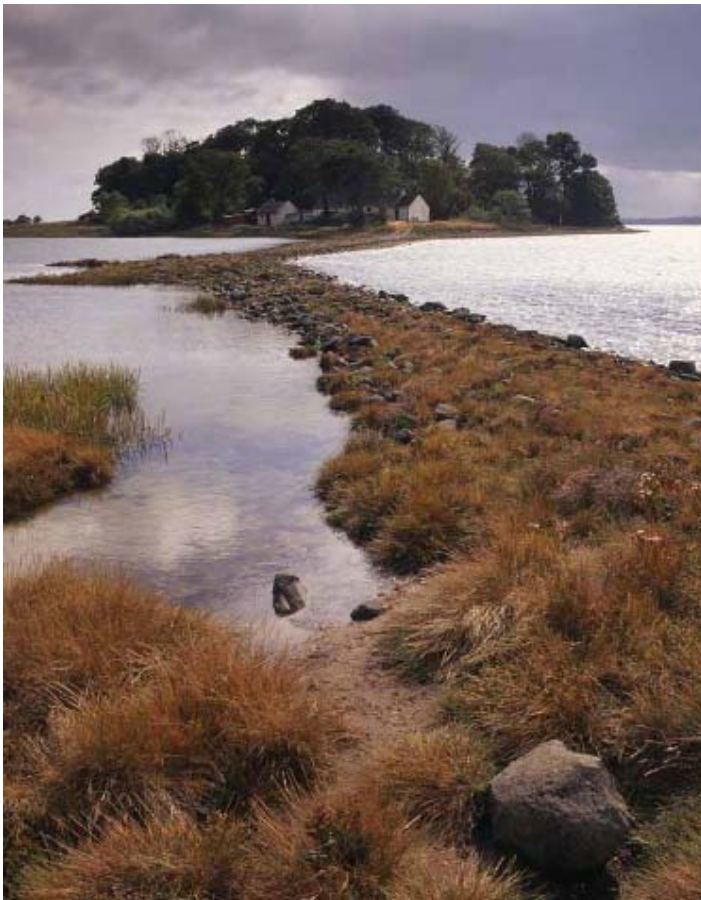
### Key coastal changes by 2100AD:

- Sea level rise between 40cm – 1.3metres
- Present day 1 in 50 year extreme surges could happen 1 in 3 years by 2050, and possibly once a year by 2100
- By 2050, the new 1 in 50 year extreme surge could be 3-4 metres above today's mean sea level.



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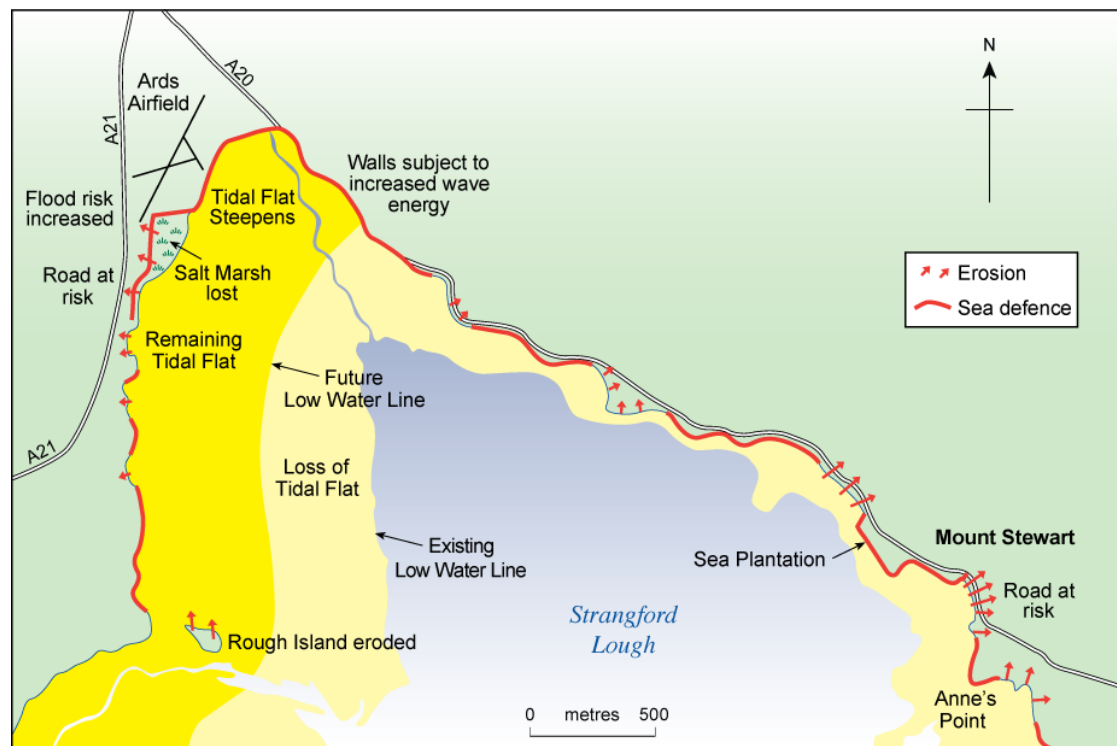
### North East Strangford Lough: focus of study



- Between Newtownards and Anne's Point (beyond Mount Stewart)
- Intertidal mudflats and high water shoreline
- Huge populations of marine invertebrates and extensive beds of *Zostera*
- Significant feeding grounds for Light-bellied Brent Goose – 30,000 birds
- Mudflats important for wildfowl (e.g. shelduck) & waders – redshank, oystercatcher, dunlin.

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## Strangford Lough of the future?



- Sea level rise of c.25cm by 2050
- 'Worst case scenario' of 1 metre rise by 2100
- Existing sea walls or defences would limit scope for tidal mudflats to migrate elsewhere
- A 20cm rise in sea level could lead to 20-30m of tidal mudflats permanently under water
- A 1 metre rise would result in 400 - 500m of mudflats lost
- Dramatic impact on Brent Geese and other winter birds

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### Strangford Lough of the future?



- Summer breeding seabirds – Arctic, Common and Sandwich Tern – affected by loss of nest sites on shores and islands
- Haulouts for Common and Grey seals in short supply as islands submerged
- Saltmarsh eroded or lost, with little scope to migrate
- Increasing winter storms and surges: increased overtopping of roads
- Undermining sea defences, increasingly costly to maintain
- Steep loughshore slopes and coastal walls lead to coastal squeeze

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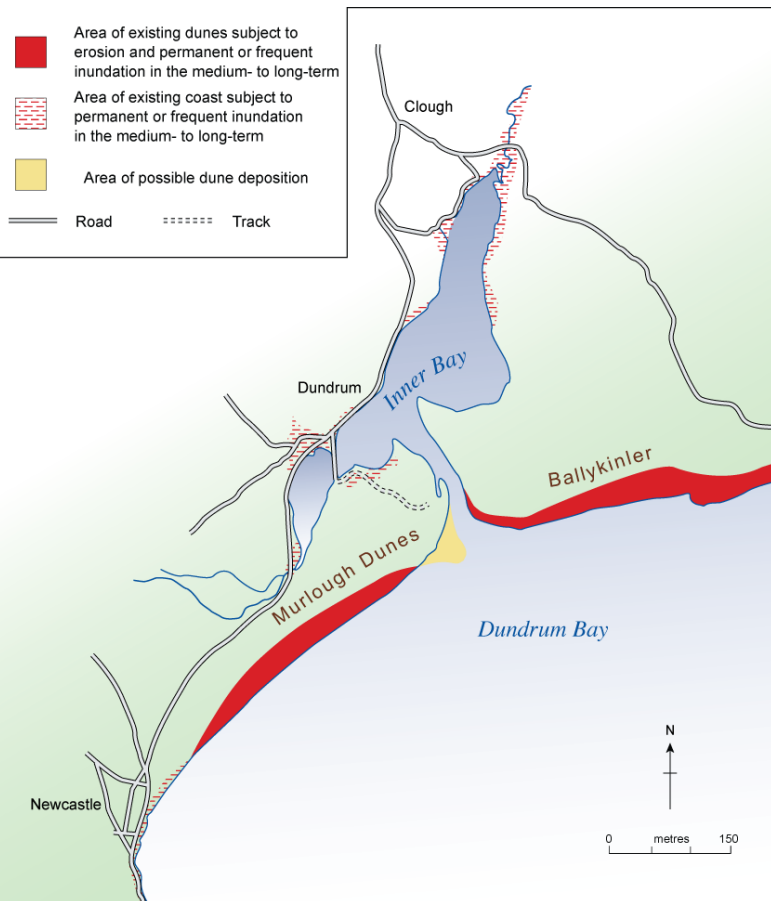
### Ongoing work...

- Property management:
  - using the research to inform our decisions
  - commissioning further research – e.g. on the shoreline around Mount Stewart, especially at the ‘Sea Plantation’
  - trying to plan ahead for the long term
- Working with partners:
  - key issues for all organisations with an interest in Strangford Lough



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## Murlough NNR of the future?



- Sea level rise would lead to between 50 – 400 metres dune erosion, with impact on Special Area of Conservation

- Increased potential for south easterly storms – possible extreme surges 1 metre above today's extremes levels

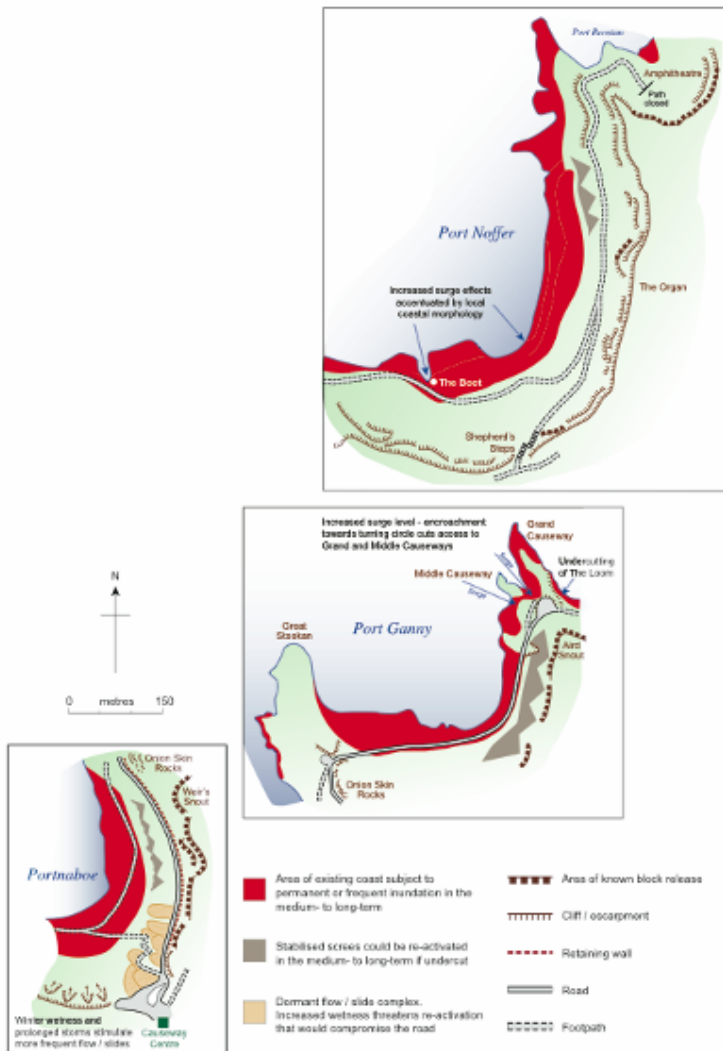
- Inner Bay flooding could lead to saltmarsh losses on west side; possible growth on eastern side

- Wetter winters and drier summers, affecting dune and heath vegetation

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## Causeway Coast of the future?

- The Giant's Causeway WHS may experience wetter winters, drier summers,
- In short term (2020s) increasing threat of storms, needing rigorous hazard management
- Medium term (2050-2080) with increased intensity of rainfall slope instability and cliff retreat may be likely. Realignment of cliff top path may have to be considered. Long term viability of road would need to be reviewed.
- Changing conditions will impact on significant cliff foot habitats.



## Shifting Shores Living with a changing coastline

- NT research helps us understand how climate change might affect our properties
- Highlights big questions and issues for everyone
- ‘Shifting Shores’ is about embarking on a debate
- We don’t have all the answers!



## Shifting Shores Living with a changing coastline

### Key messages to Government:

- **Comprehensive research is essential**

- coastline mapped in detail (LIDAR)
- more NI specific climate change research
- adequate and ongoing sea level monitoring
- assessment of coastal habitats and possible responses to changes in sea level



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## Key messages:

### **Planning system must take climate change into account**

- Reform of planning should ensure we are prepared for future climate change
- Development Plans and Planning Policy Statements must take climate change on board
- PPS 20: The Coast is needed urgently
- PPS 1 should reflect climate change issues



## Shifting Shores Living with a changing coastline

### Key messages to elected representatives:

#### Leadership:

- encourage all citizens to play their part to **mitigate** the impacts of climate change
- commitment to stretching Climate Change Bill targets essential

#### Vision:

- Encourage planning **now** to **adapt** to climate change in the future



## Shifting Shores Living with a changing coastline

### The public debate...

- Are there opportunities to encourage public debate and understanding
- e.g. issues on Strangford Lough to highlight climate change challenges for the future?
- Engaging members, public, local communities
- Inspiring individual responses to climate change

