

## Flexible Planning in the Thames Estuary

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## TE2100 – Planning for an uncertain future

## What is TE2100?

A Project to provide a plan demonstrating how **flood risk** can be managed in the **Thames Estuary** over this **century** in response to:

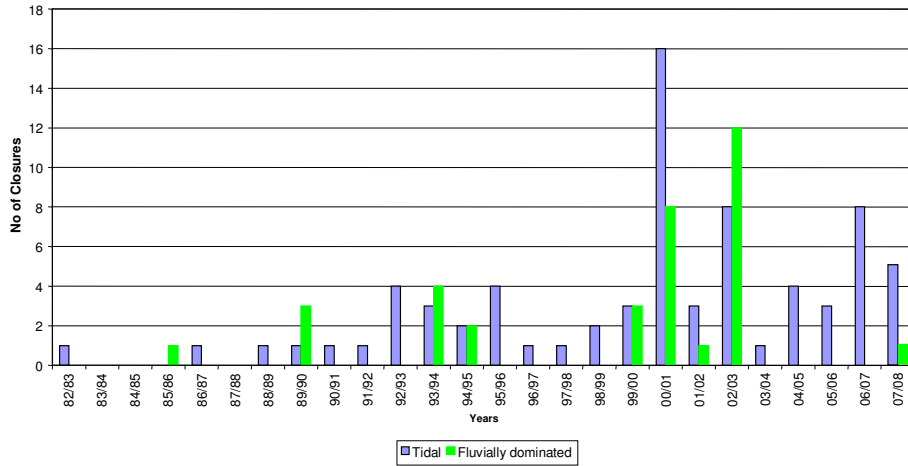
- a changing climate
- a changing estuary
- ageing flood defences



## The 100th Thames Barrier Closure

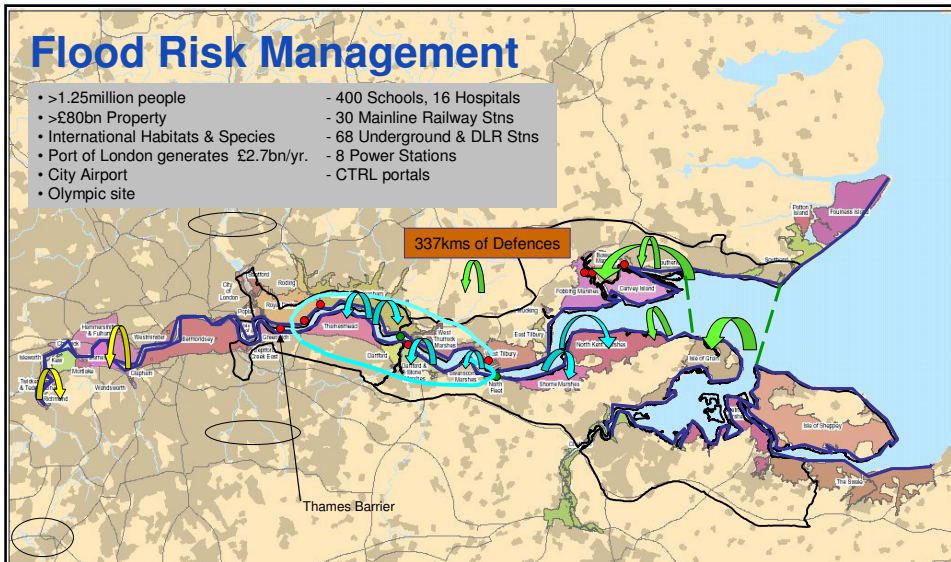


**Thames Barrier Tidal, Fluvially dominated Closures as at  
(25 March 2008)**



## Flood Risk Management

- >1.25million people
- >£80bn Property
- International Habitats & Species
- Port of London generates £2.7bn/yr.
- City Airport
- Olympic site
- 400 Schools, 16 Hospitals
- 30 Mainline Railway Stns
- 68 Underground & DLR Stns
- 8 Power Stations
- CTRL portals



- At Risk now
- The Current Defences
- New Barriers
- Space for Flood Storage and Habitats
- Restoration of the Floodplain
- Attenuation of Up-Stream Flows
- Floodplain Management

## Climate Change & TE2100

- Climate Change critical issue for flood risk
- Main driver of physical flood risk sources in order of uncertainty at project start :-

Uncertainty

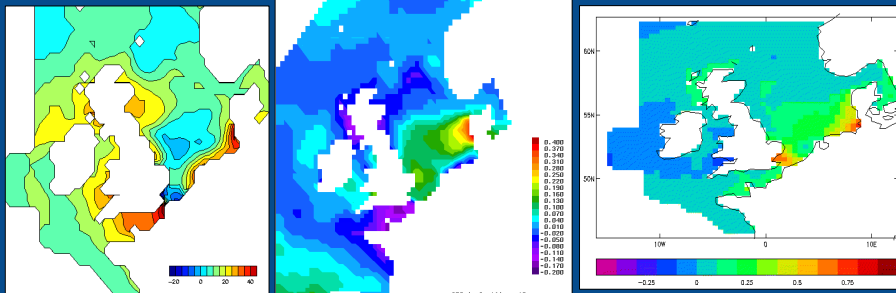
- Waves
- Fluvial Flow
- Sea Level Rise
- Surge
- Joint Probability



- Hence the need to commission the Science in 2005

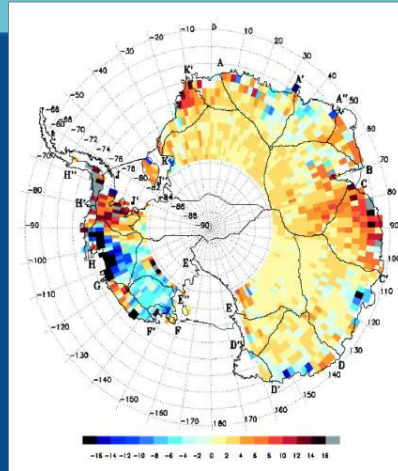
## Science before TE2100

- River flow - DEFRA guidance – 20 % increase
- Mean SLR – IPCC 3<sup>rd</sup> Assessment Report, UKCIP02
- Storm surge – models from UKCIP02, WASA, STOWASUS



## Latest Satellite Altimeter Results

- East Ant : - 0.12mm/y msl
- West Ant : + 0.16mm/y msl
- Marine ice sheet zones
  - major discharges :
    - Pine Island - Thwaites in West Antarctica
    - Totten and Cook in East Antarctica



Davis et al  
2005

## TE2100 Programme

- MOHC POL CEH studies provide probabilistic scenarios for Thames Estuary for Storm Surge, Sea Level Rise, Fluvial Flow,
- Storm Surge and Sea Level Rise benefit to UKCP 09
- Climate Change Critical Factor – TE2100 input to IPCC 4th Assessment Report, Stern

## Thames Estuary 2100 Project

- To achieve the project objectives we have based our programme of studies around a Decision-Making Framework that has largely been piloted by ESPACE...



Climate adaptation:  
Risk, uncertainty  
and decision-making

Helps deliver policies  
and projects that are  
robust in the face of  
an uncertain future  
climate

[www.ukcip.org.uk](http://www.ukcip.org.uk)

## TE2100 Techniques

- Scenario neutral analysis – thresholds for responses
- Led to decision pathways and adaptable options
- Monitoring - links with BAS, at cutting edge of ice melt science – essential for adaptable plan - with critical lead times

## Managing Flood Risk through the Century

