Better Outcomes Through Innovation: How innovation can deliver multiple benefits + better outcomes for coastal flood resilience management

a Portsmouth review

Feb. 8, 2018

by Walter Menteth RIBA, FRIAS
Portsmouth School of Architecture
Walter Menteth Architects
Project Compass CIC
RIBA Presidents medal for research 2015
The Canute Conundrum
The Canute Conundrum

There are two historic interpretations of this myth

Canute sought to:

1. command back the sea + failed

origin Victorian
The Canute Conundrum

There are two historic interpretations of this myth

Canute sought to:

1. command back the sea + failed
2. remind his people that the sea could not be commanded

Canute was norse and King of the North Sea Empire
The Canute Conundrum

informs coastal management
responses to this day
Climate change induced rises in sea level pose significant recognised risks to major cities.
the low lying Solent region is particularly vulnerable
+ Portsmouth is the UK’s only Island City

Population 205k with 5,100 people per km², above London, with an average of 4,900 people per km² + 20 times higher than the UK average of 255 people per km².
Ref: ONS Portrait of the South East 2011
Portsmouth’s Southsea frontage

Innovation for Better Outcomes in flood resilience management
Portsmouth’s Southsea frontage is at high risk
(8,077 residential properties in the flood cell, with 4,114 residential properties + 704 commercial properties at risk of inundation)

Ref: Eastern Solent Coastal Partnership 2016
An area contributing significantly to the city economy
(c.12% of the city income derives from tourism)
is rich in historic assets
(5 scheduled monuments + 34 listed buildings)
+ a range of other unique functions (including the world's only commercial hovercraft service)
Innovation for Better Outcomes in flood resilience management

**Context**

**Flood and Coastal Erosion Risk Management (FCERM) Programme - England (April 2017 update)**

**In the UK**

- Fluvial + coastal

**Portsmouth**

- £152,482k on major coastal projects

---

**Flood and coastal erosion risk management in England**

**Investment programme 2015 to 2021**

- **£2.5 billion** capital investment to reduce risk of flooding and coastal erosion

- Attracting over **£345 million** in additional funding through partnership contributions

- Over **£235 million** planned savings through new, more efficient working, to be re-invested in managing flood risk

- 42% spent on coastal flood and erosion risk management and

- 58% on inland flood risk management

---

Flood and Coastal Erosion Risk Management (FCERM) Programme - England (April 2017 update)
The City have adopted a Policy of ‘Holding the Line’

this defines + determines the range of coastal resilience strategies available - effectively to only one!
with proposed investment having potentially detrimental economic consequences
(the city’s income derived from tourism, health, well being, accessibility, + amenity)

designs cut, copied + pasted

+ drawing on neither best international practices or the local context

to 4.5km of urban coast
having sheer wall faces obstructing coastal access to the landside
Innovation for Better Outcomes in flood resilience management

Current Proposals

3.2

EXISTING BEACH STRUCTURES TO BE REMOVED
CONCRETE, TIMBER AND ROCK GROYNE (FRONTAGE 4)

D2 30.03.2015 CLIENT COMMENTS ADDRESSED AIK RWW SPH
D3 09.04.2015 VEHICLE ACCESS RAMPS ADDED AIK RWW APL

SECONDARY DEFENCE LOCAL BACKWALL RISING FROM AND PROMENADE
RAISED GL +6.1 TO +6.4 FROM WEST TO EAST
STEPPED REVETMENT AND TIMBER AND ROCK GROYNE. ONGOING
FLOODGATES

3.1

EXISTING ROWING CLUB PROTECTION ROWING CLUB AND RESTAURANT
INDIVIDUAL PROPERTY PROTECTION FOR TRIDENT MONUMENT

3.3

EXISTING MONUMENTS (SEE NOTE 7) TO BE RELOCATED ON
TOE ALIGNMENT PEDESTRIAN ACCESS BETWEEN THE PROMENADE AND THE HOVERPAD
BE CONSTRUCTED TO PREVENT TOP OF RAMP (3A) FLOODGATE AT
CONCRETE, TIMBER AND ROCK GROYNE

but for public clients THE QUESTION SHOULD NOT BE - HOW BEFORE WHAT
the lack of an open policy framework allowing contextual response has predetermined the OBC, disenfranchised the public + constrained innovation + best whole life value
a ‘restricted’ procurement with ‘early contractor appointment’ by ‘framework call off’ with sub-consultant designers further reduced flexibility + closed the process + opportunity in an effectively wasteful ‘lock in’ to a ‘single point of contact’ Offering premature expediency process + programme ‘capture’
‘DAD’ MANAGEMENT
Decide, Announce, Defend
(Canute 1)

independent design research set out to investigate whether holistic design + construction might achieve better + more sustainable value, with public engagement

professionals competitively selected

UK:-

Dutch:-

A COLLABORATION OF BROAD EXPERTISE

+ supported by Portsmouth School of architecture masters students
Innovation for Better Outcomes in flood resilience management

Design Research

mentored by anglo-dutch cross-disciplinary expertise:-
(architecture, engineering, landscape & planning)

A broad collaboration of international expertise

Nick Clarke
Director for Ports and Marine at Ramboll

Julia Barfield
Founding Director Marks Barfield Architects

Sophie Thompson
Director LDA Design

Matthijs Bouw
Founding Director One Architecture Dutch Water Design

Alexander Lee
Team leader Rivers, Deltas & Coasts Roya Haskoning DHV

Frant de Graaf
Urban Waterfront Planner Roya Haskoning DHV

Martin Knuijt
Director OKRA Landscape Architects
Innovation for Better Outcomes in flood resilience management

Design Research

funded by:
stimulerings fonds
creatieve industrie

organised by:

Indira van’t Klooster
Senior project manager
Architectuur Lokaal

Cilly Jansen
Director Architectuur Lokaal

Walter Menteth
Director Project Compass,
Walter Menteth Architects
+ Portsmouth Architecture school

Francis Graves
Senior lecturer Portsmouth Architecture school

UK institutional funding
consulting, engaging + delivering to:

public, stakeholders, + public authority clients

From Nov. 2016 Portsmouth - Feb. 2017 The Netherlands
2. SCALES, THEMES + ECOLOGIES

CREATE OPPORTUNITY 
EG. EXPAND THE BEACH + 
CONNECT THE NATURAL WETLAND 
AREA WITH THE CITY

SPACIAL ACTIVITIES, SCALES, 
THEMES + ECOLOGIES HAVE 
RELATIONSHIPS ALONG A 
COASTLINE
THE LIFTED NEW COMMON WILL CREATE A VIBRANT AND INTERACTIVE LANDSCAPE, WHILST PROVIDING OPPORTUNITY FOR COMMERCIAL DEVELOPMENT AND SOCIAL USE.

INCREASE OPPORTUNITIES FOR SOCIAL USE + COMMERCIAL DEVELOPMENT BY CREATING A VIBRANT + INTERACTIVE LANDSCAPE

THE COMMON
FLEXIBILITY

A FIXED LINE IS OF LIMITED BENEFIT

TO DELIVER MULTIPLE BENEFITS A DYNAMIC COASTLINE REQUIRES ‘PRECISION WORK’
RESILIENCE + EXPECTATIONS

DEVELOPING THE MANAGEMENT EXPECTATION WITH THE INEVITABILITY OF CHANGE

MASTERPLAN (NORMAL)

MASTERPLAN (EXTREME)

MASTERPLAN (POST 2100)
URBANITY, CHARACTER + PLACE

PROPOSITIONS TO ENHANCE UNIQUE PLACE + CHARACTERISTICS - NOT OBLITERATE THEM
THE EDGE CONTEXT

Recommendation + Detail findings are described in: Designing Sustainable Sea Defences: Developing principles for Procedures, processes and practice

An alternative strategy was then designed, proposed + widely presented:

to public meetings
through public exhibition
digitally

Ref: Menteth W. Portsmouth the island city, Building better flood resilience for southsea’s frontage + common. London: The Island City Papers, Project Compass CIC; 2017.
Delivering:

public choice

+ 

• holistic urban planning
• whole life value + resilience
• greater future economic opportunity
• design integration of historic assets
• some managed realignment
with a combined green/blue (fluvial + coastal) resilience strategy

Sea Defence Sections. Options for incorporating water storage cisterns in/to the rear of the sea defences
Innovation for Better Outcomes in flood resilience management

**Alternative strategy**

**Integrated sustainable transport**

proposed vehicular + circulation strategy plans

managed realignment then delivers a net gain in usable public area
Innovation for Better Outcomes in flood resilience management

Alternative strategy

UNIT 401 ARCHITECTURAL DESIGN STRATEGY

GROUP STRATEGY

6 4 5 6 8 9   /   6 4 6 9 2 2

PROPOSAL: OLD PORTSMOUTH

The concept for the Old Portsmouth coastal zone, is focused around the reappraisal of the area’s history through public interaction and the active engagement with a hard-engineered coastal flood defence. This is achieved through:

- Encouraging public engagement with forgotten historic monuments.
- Improving pedestrian permeability by removing barriers to open space.
- Enhancing the experience of hard engineered coastal flood defence, through the notion of ‘journey’.
- Developing a high-quality landscape proposal.

Addressing historic assets + identifying new opportunities

overview of proposal
future coastal management needs to OPEN TO:

1 expanding capacity + early collaborative design

2 flexible governance which sets objectives - not solutions

3 early, better + meaningful public engagement

4 process innovation + opening procurement by for example more ‘open parallel commissioning’
future coastal management needs TO ALLOW:

1 more innovation + piloting
2 better + more contextual design integration
3 infrastructure that delivers the ‘multiple benefits principle’
4 embedding whole life value with foresight + vision
we need to DO THIS FOR
1 better value
2 stakeholders (+ societal knowledge)
3 resilience
4 trade
thank you

References:
• Office of National Statistics. Portrait of the South East. 2011
• Flood and Coastal Erosion Risk Management (FCERM) Programme - England (April 2017 update)
• The Portsmouth Elephant Cage. http://www.portsmouthisland. uk/the-portsmouth-elephant-cage.html
• Menteth W. Portsmouth the island city, Building better flood resilience for southsea’s frontage + common. London; The Island City Papers, Project Compass CIC; 2017.
For Better Outcomes Through Innovation:

coastal management needs to OPEN TO:

1 expanding capacity + early collaborative design
2 flexible governance which sets objectives - not solutions
3 early, better + meaningful public engagement
4 process innovation + opening procurement by for example more ‘open parallel commissioning’

coastal management needs TO ALLOW:

1 innovation + piloting
2 better + more contextual design integration
3 infrastructure that delivers the ‘multiple benefits principle’
4 embedding whole life value with foresight + vision