TIDE
Tidal River Development

Estuary Restoration: are we achieving success?!

Philip Winn

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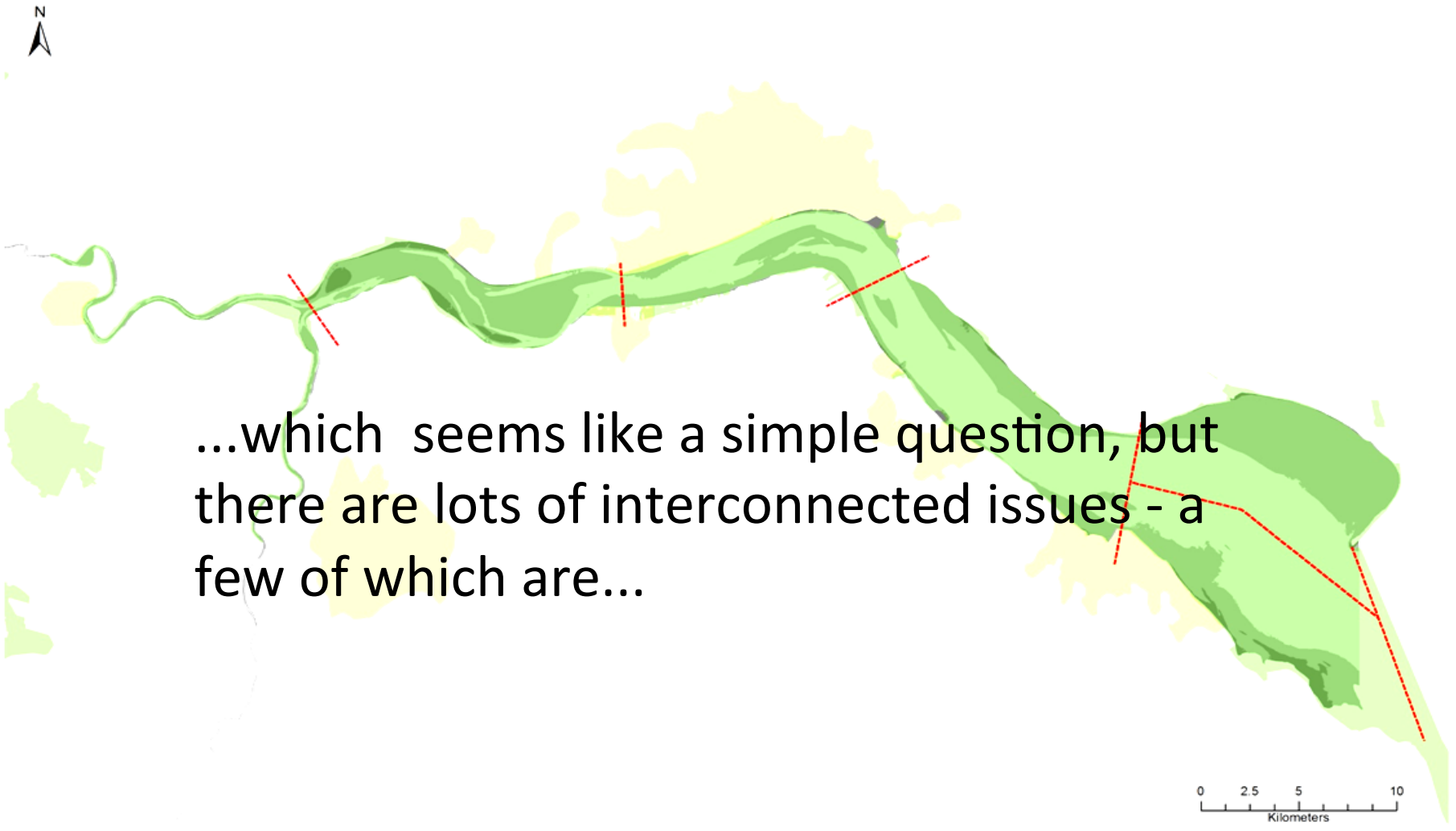
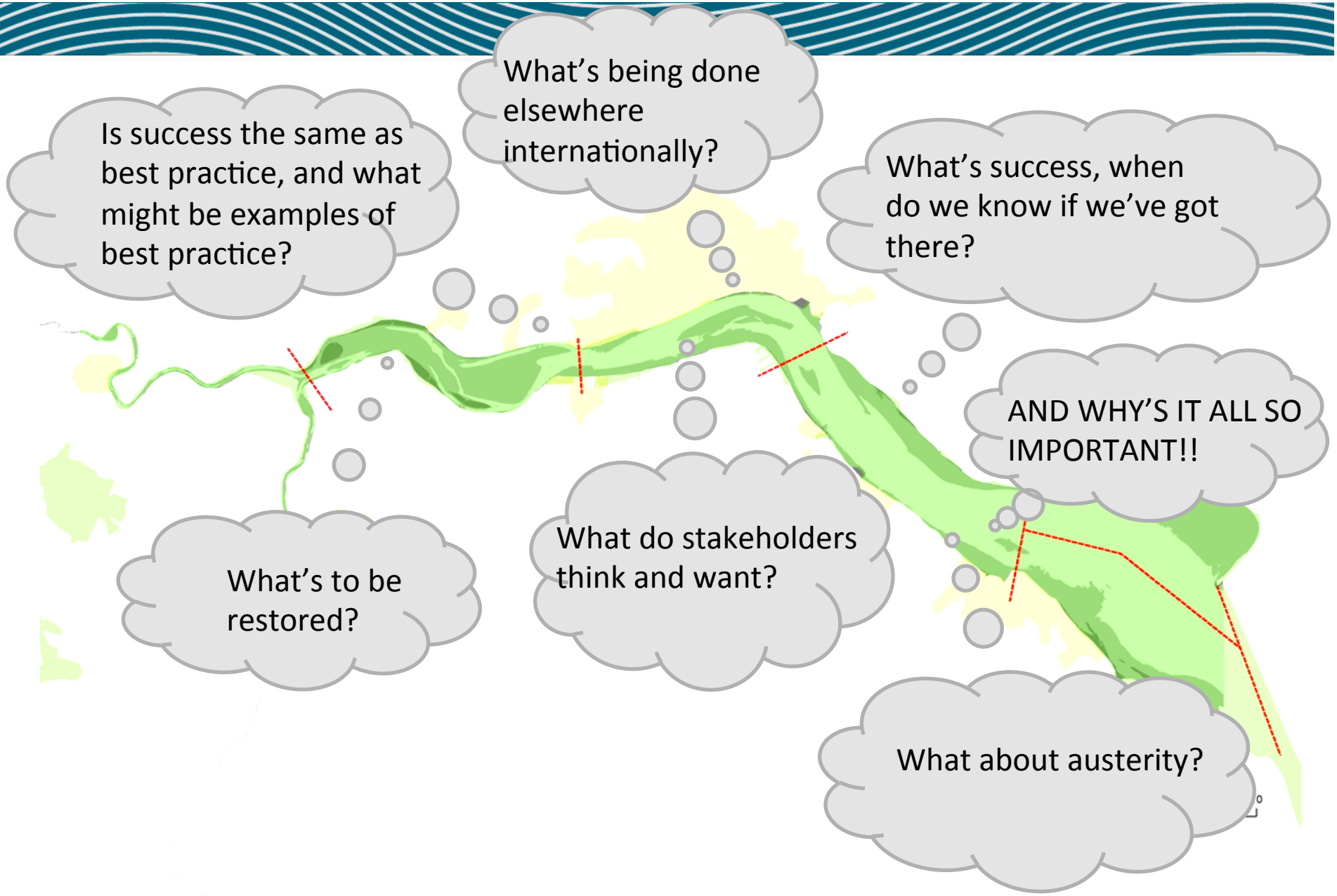


...which seems like a simple question, but there are lots of interconnected issues - a few of which are...


What's being done elsewhere internationally?
Is success the same as best practice, and what might be examples of best practice?
What's success, when do we know if we've got there?
AND WHY'S IT ALL SO IMPORTANT!!
What's to be restored?
What do stakeholders think and want?
What about austerity?

Estuary “restoration”…

About seeking to reverse the loss of valuable estuarine habitats and reinstating or revitalising estuary functions.

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Estuary “restoration”...

About seeking to reverse the loss of valuable estuarine habitats and reinstating or revitalising estuary functions.

We might call it “Renaturalising” ...

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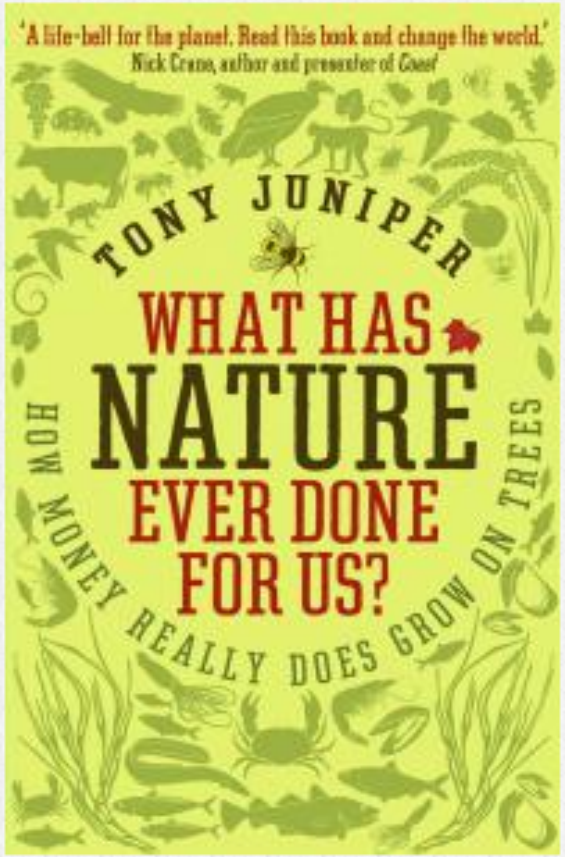
A good starting point though is this recently published book by Tony Juniper (Vice Chair of Friends of the Earth International 2000-2008)



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It’s a book about the fragility of the global ecosystem – which is under great stress, but the author believes we could put things right...

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"Some kinds of coastal ecosystems are being removed at a rate of up to seven percent per year, and at that rate most will be gone within a couple of decades.
If on the other hand we take effective action to stop the decline, and to begin restoring these carbon-heavy systems (so-called 'blue carbon'), this would account for about a tenth of what we need to do in order to stabilise CO2 concentrations in the atmosphere."

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What's been lost / being lost?

- In many countries, there have been huge historic losses
- Very large losses still taking place (Louisiana a good example, and which contributed very significantly to the damage caused by Katrina)

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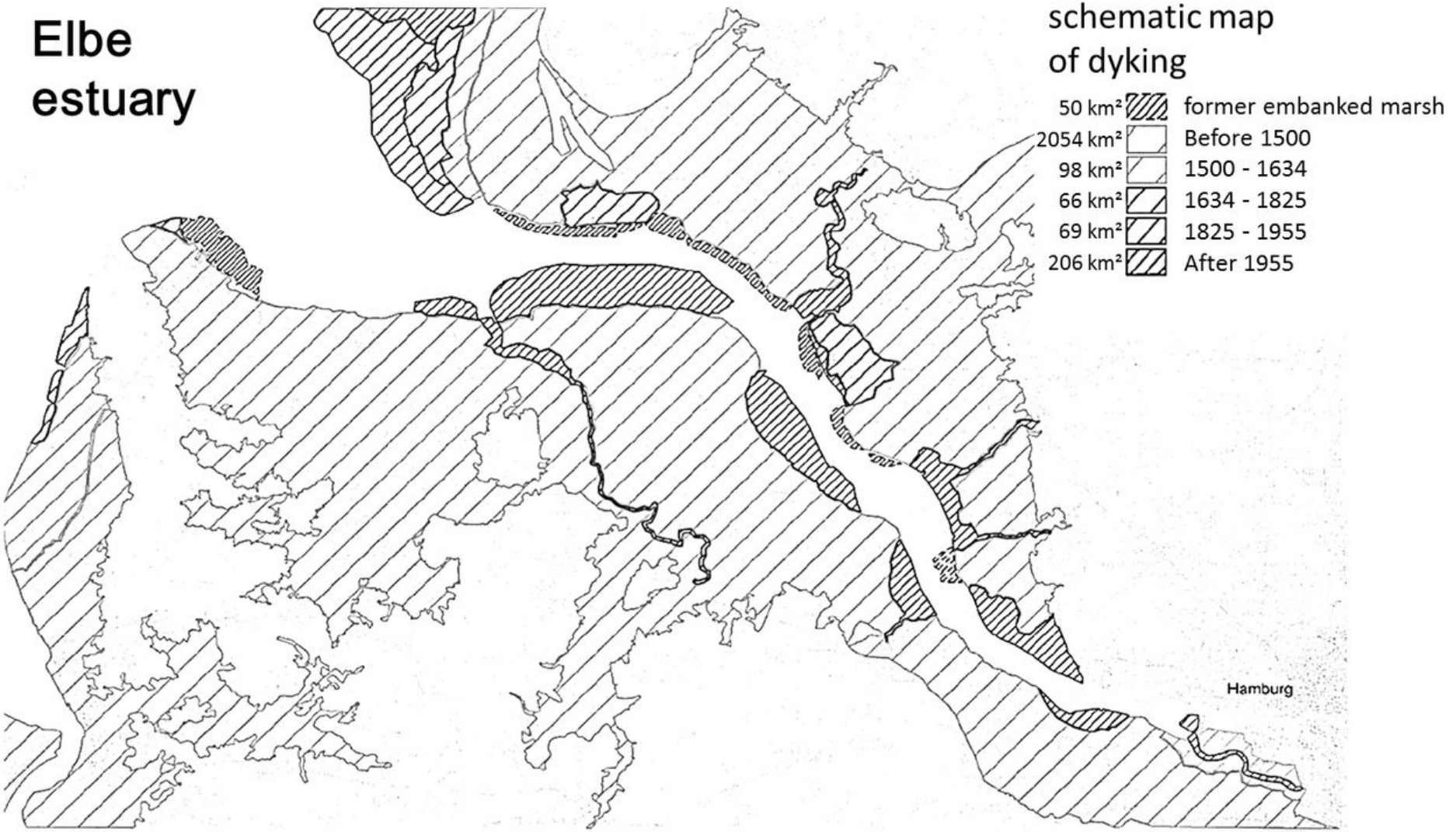
Elbe estuary

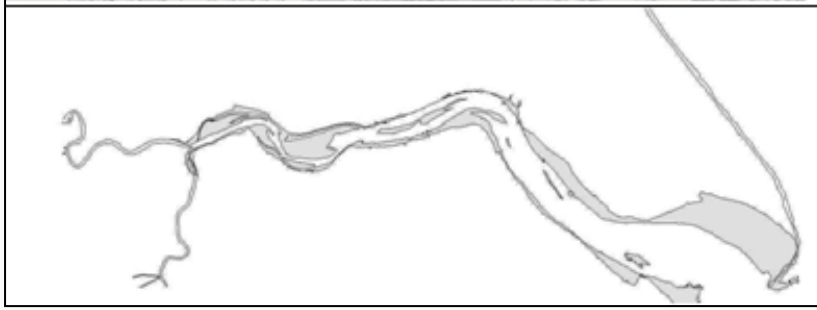


a) Humber Estuary, *c.* 1725

Note Sunk Island is an 'island' in the outer Humber. However, the inner estuary looks broadly similar to the current morphology (C).

b) Humber Estuary *c.* 1850

Note Sunk Island is now part of the terrestrial north bank of the estuary. The inner estuary remains largely unchanged and similar to (C). However, Read's Island has yet to be created off the south bank, east of Winteringham and Broomfleet Island joined to the north bank, west of Brough.



c) Humber Estuary Present

Apart from differences in mapping techniques, the general morphology of the estuary resembles that of the mid 19th Century (B).

Embanking on the Humber...

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In the United States:-

- 95% of San Francisco Bay's original wetlands have been destroyed
- 85% of Galveston Bay's seagrass meadows are gone
- More than 30% of Connecticut's coastal wetlands have been lost
-25 square miles of coastal Louisiana wetlands disappear each year
- US lost nearly 60,000 acres of coastal wetlands each year between 1998 and 2004.

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Some of the restoration plans....

- "Room for the River" in Holland, Germany, France and Switzerland
- Sigma Plan in Belgium
- America's National Ocean Policy
- In the UK an objective to replace ongoing annual losses via regional plans, and using a 'no further losses beyond a baseline value' approach for designated sites, as on the Humber

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Some of the restoration plans....

The **Sigma Plan** is a long-term strategy and list of projects to manage flood protection and nature restoration of the Scheldt estuary in Belgium. It aims to restore 5,000 ha of flood plains, estuarine natural areas and wetlands along the Scheldt and its tributaries during the period 2006 to 2030.

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The Room for the River project site encompasses the Rhine, the Meuse, the Waal, and the Ijssel. It is an integrated plan having as main objectives, flood protection, and the improvement of overall environmental conditions. Forty projects are due to be completed by 2015, with a budget of €2.2 billion. Measures in the plan include: placing and moving dykes, depoldering, creating and increasing the depth of flood channels, reducing the height of groynes, removing obstacles, and the construction of a "Green River" which would serve as a flood bypass to reduce flood levels.

Room for the River

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"Federal agencies will work together and in cooperation with States and tribes to **identify the underlying causes of wetland loss in coastal watersheds, and opportunities to more effectively protect and restore the important functions and values they provide**."

US National Ocean Policy Implementation Plan April 2013

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“Agencies will coordinate to use and provide scientifically sound, ecosystem-based approaches to achieving healthy coastal and ocean habitats. Agencies will coordinate to address key threats to coral reef ecosystems, including impacts from land-based sources of pollution, climate change, ocean acidification, and from unplanned activities such as vessel groundings and spills.”

US National Ocean Policy Implementation Plan April 2013

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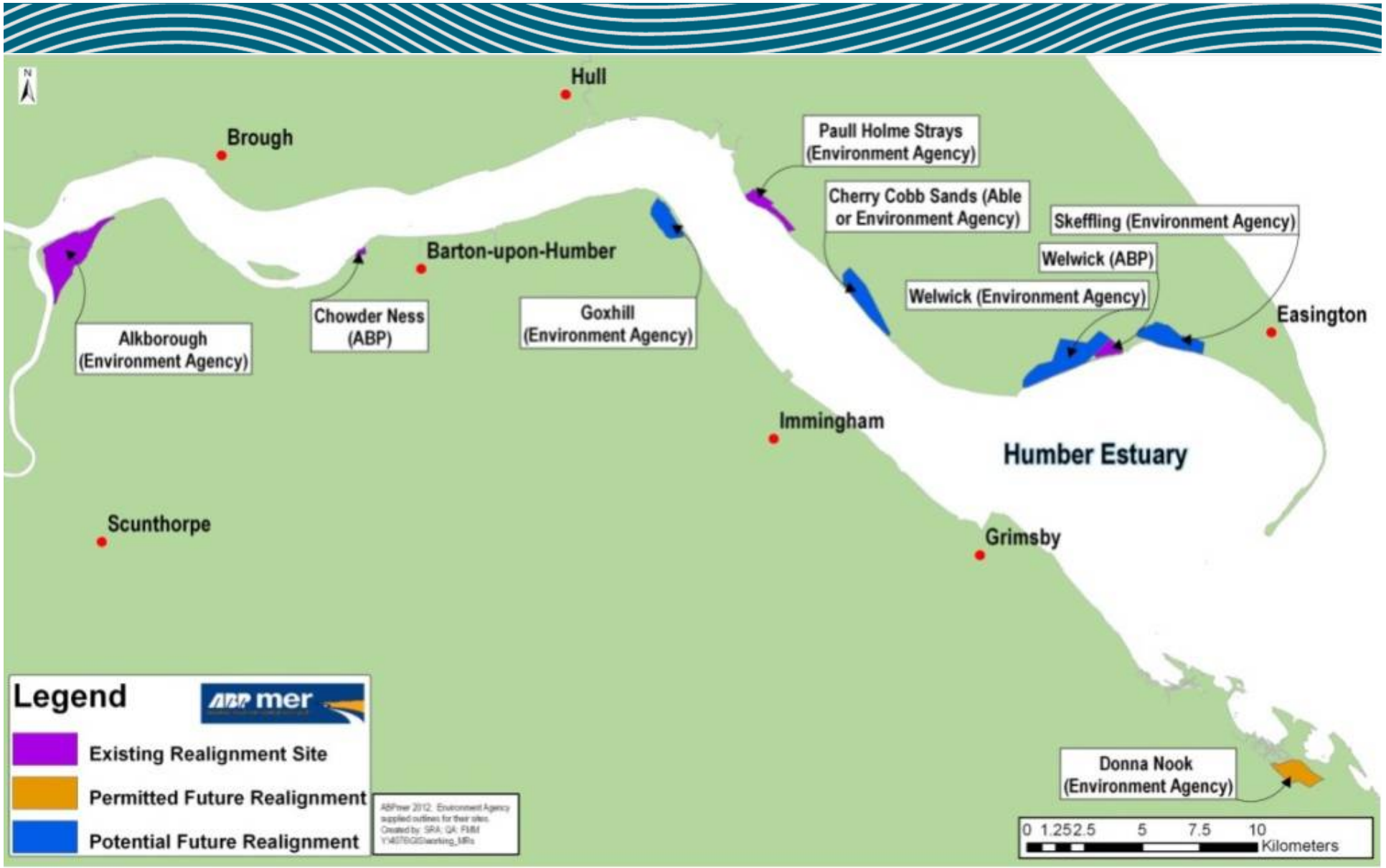
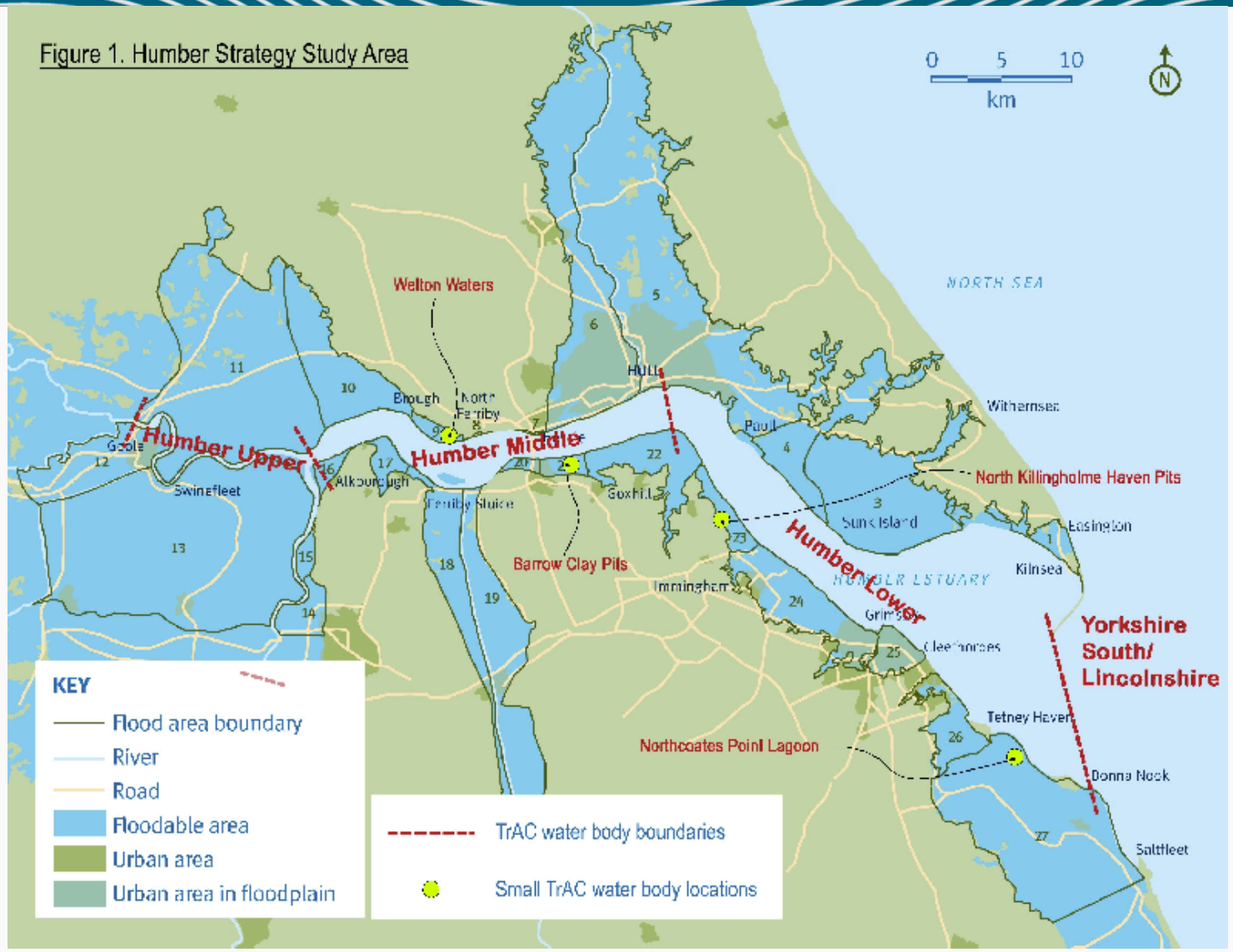


The Humber realignment sites



The Humber WFD water bodies

The “measures” being adopted, and which restore..

Two main types of restoration measures:-

- Managed realignment to restore lost habitat
- Schemes to improve or restore estuary form and function, such as channel cutting and sediment relocation schemes

and which can be seen as direct WFD responses

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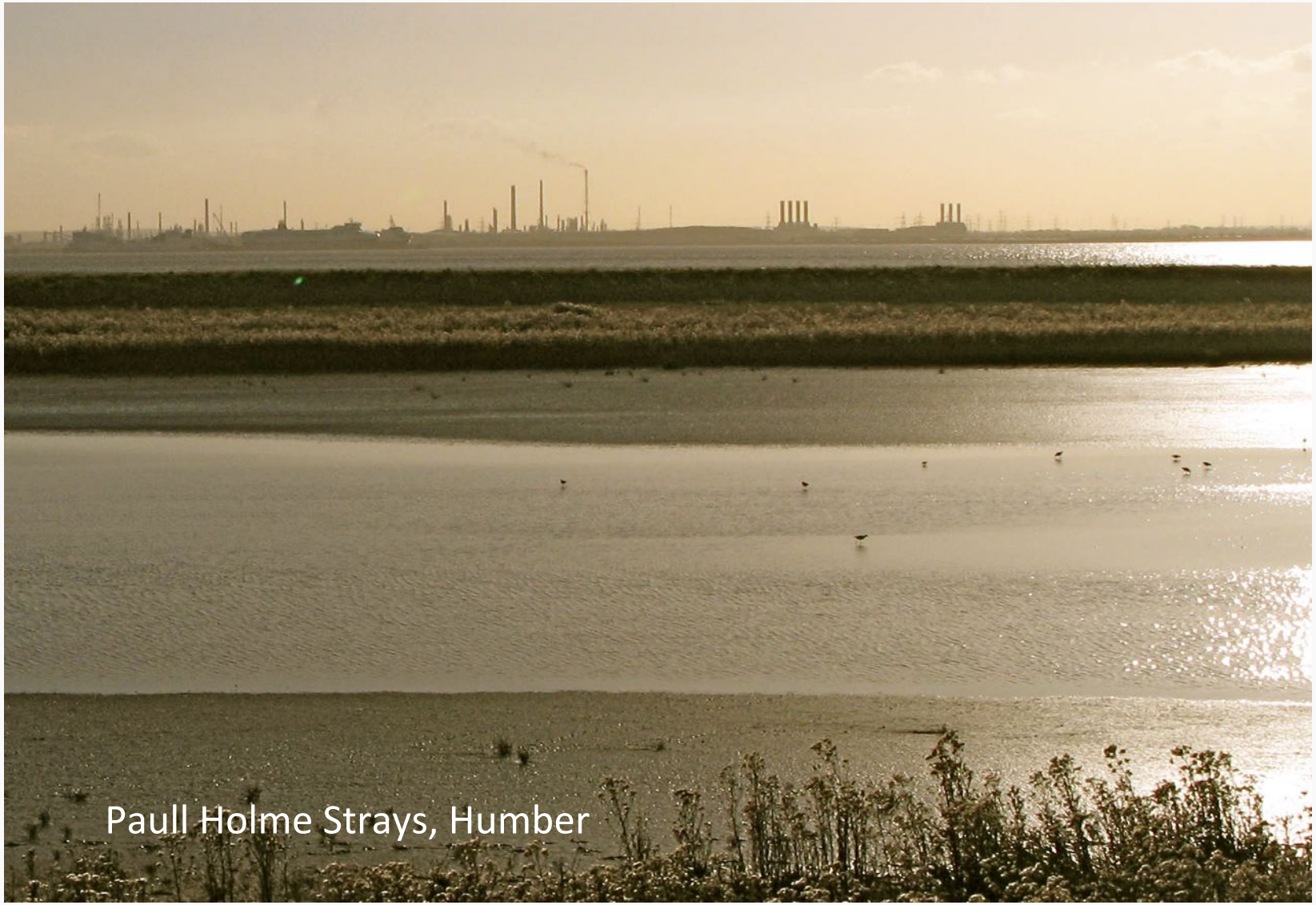
Alkborough, Humber


Alkborough, Humber


Paull Holme Strays, Humber

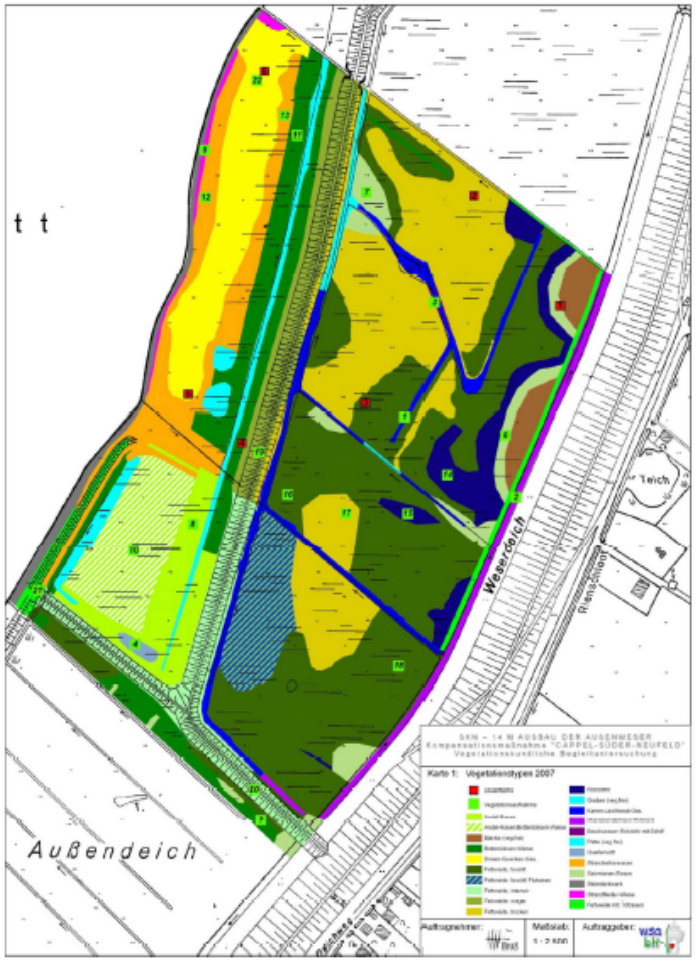
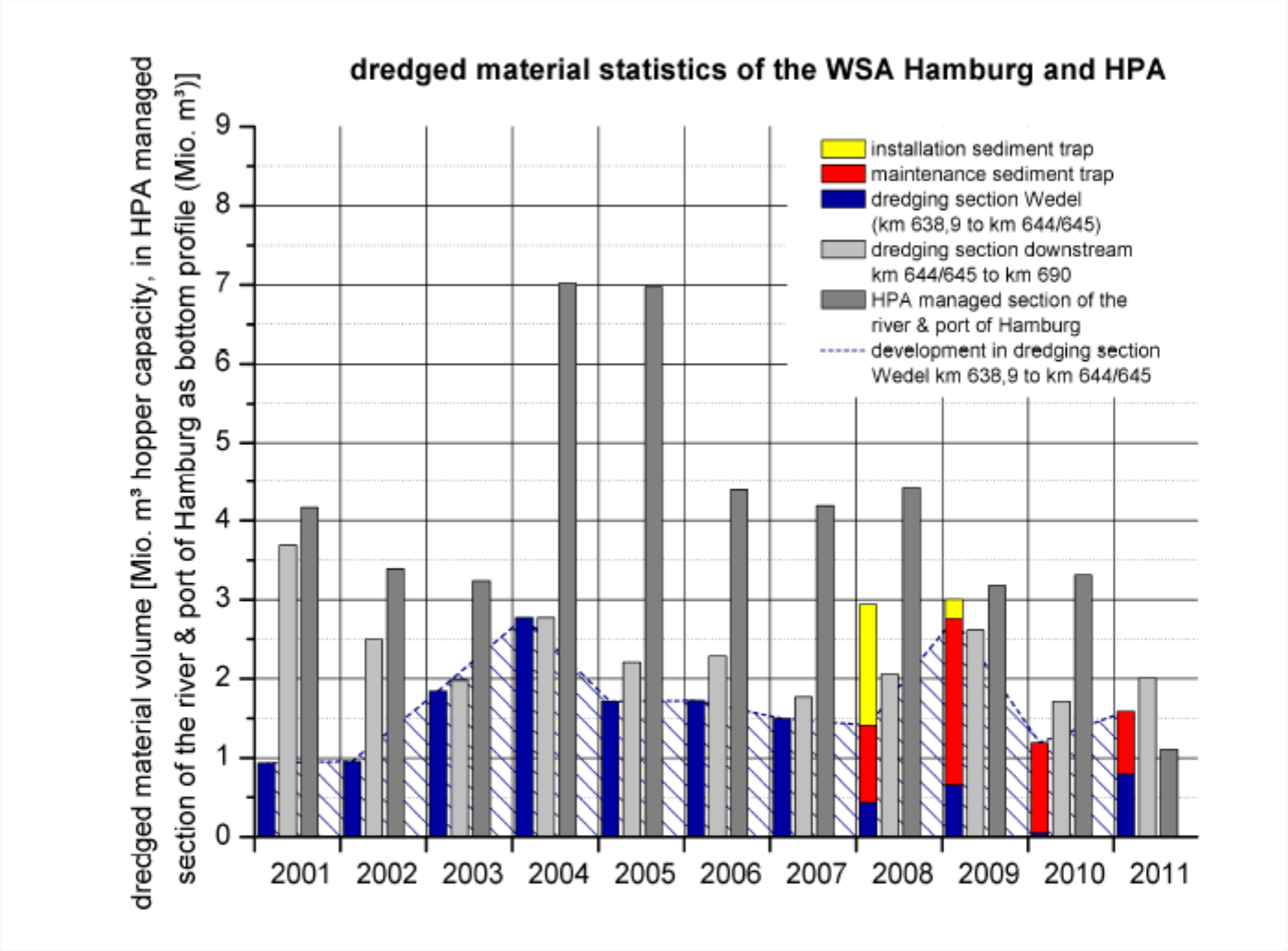


Figure 4: Structure diversity on the project area in 2007 (BIOS 2007)

Cappel-Süder-Neufeld, Weser



Reduced dredging volumes in the Elbe

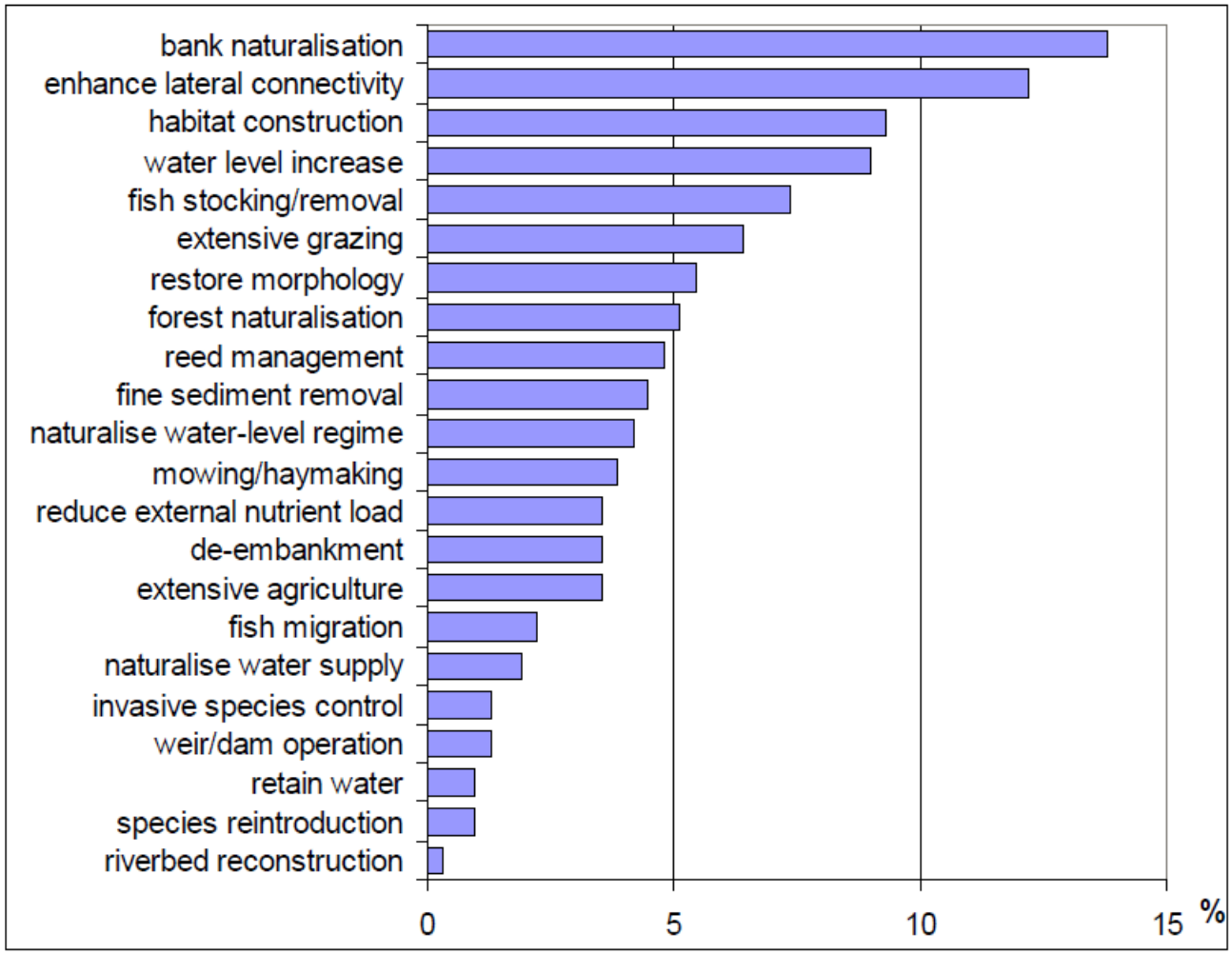


Figure 6.1 Categories of wetland restoration measures in 312 cases

Ecological Restoration of Wetland in Europe 2007

What's success, when do we know if we've achieved it?

- If a scheme achieves its original objectives (eg specific benthic communities present, or if we can measure physical change indicated by prior modelling)
- If it helps achieve legal compliance
- If it delivers wider ecosystem services benefits
- If it helps other schemes to be delivered
- If it's operational...(getting schemes operational is an enormous achievement!)

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Research carried out by the University of East Anglia in the UK indicates that we may be unable to replicate natural foreshore densities within realignment sites and the numbers of varieties of flora and fauna, even if we wait for many years.

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"It is clear from our work that marshes reactivated by managed realignment do not provide habitats and species in comparable proportions to natural marshes and do not have equivalent biological characteristics. They therefore do not satisfy the requirements of the EU Habitats Directive."

[Recently published paper by Mossman, Davy and Grant]

University of East Anglia research findings

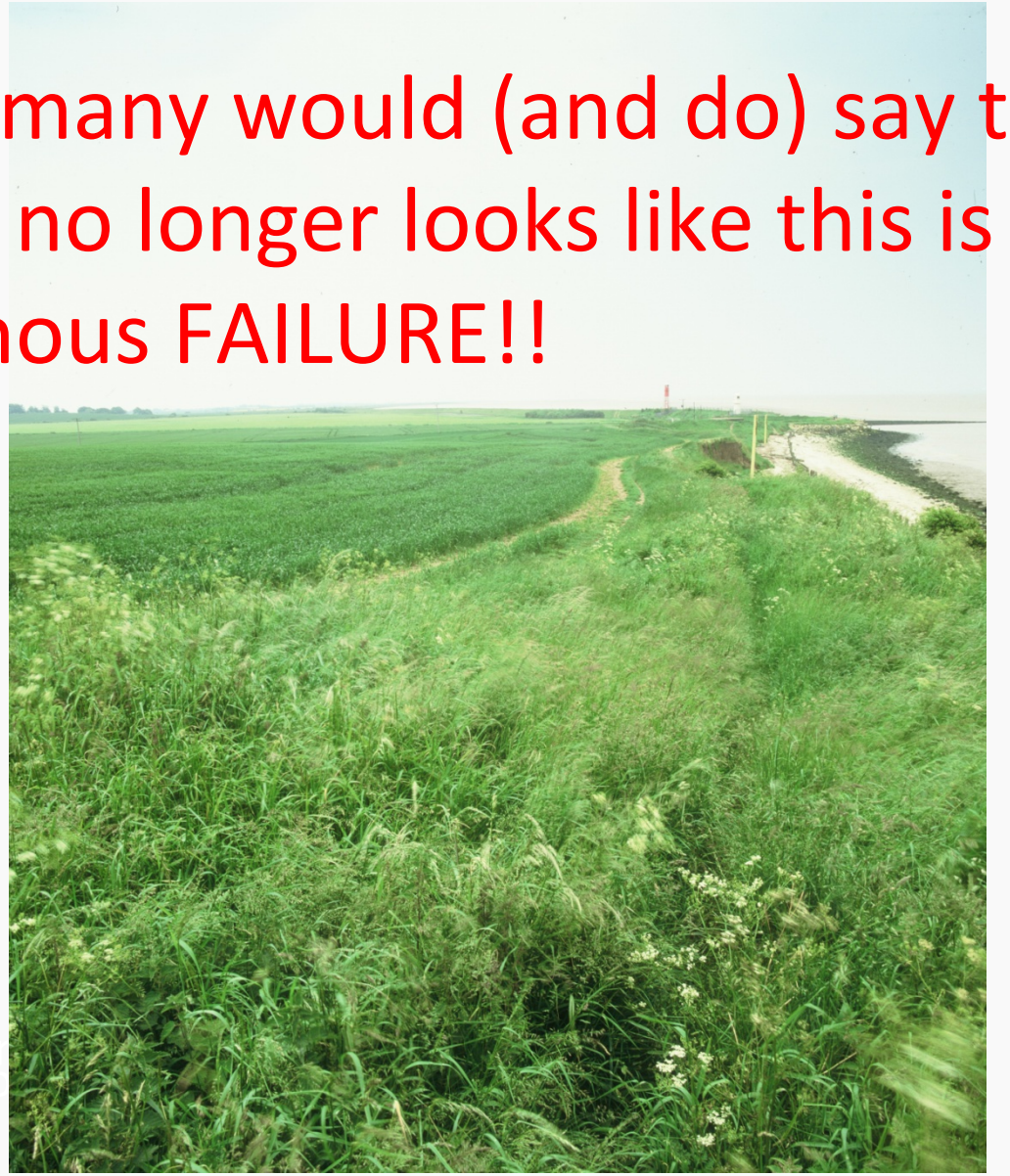
Paull Holme Strays, Humber


Paull Holme Strays, Humber


Looks like Success!!
Paull Holme Strays, Humber


But this is what was here in 2001…
Paull Holme Strays, Humber

...and many would (and do) say the fact that it no longer looks like this is an enormous FAILURE!!



But even if we achieve "technical success" what about other stakeholders?

- Big debates in the UK with Regulators about whether or not completed schemes are achieving what's needed, and whether planned compensation schemes will be adequate
- Many politicians in the UK are uncomfortable about the influence of Europe...!

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Talking with regulators and other stakeholders...


Talking with regulators and other stakeholders...

- If targets / objectives are met at a certain point in time does this mean that the site has been accepted as complete?
- How long do targets need to be met for? And how will this be secured?
- Are the existing data sets sufficient to provide evidence for designation?
- Who leads on this process and what is the timescale?
- Are the developers still required to continue to monitor the site while this process is carried out?
- Can a clear distinction be made between existing sites and future site?
- If so how do the responsibilities change if the MR site is designated? And what is the process to make the designation happen?

The sorts of issues being discussed...

Are success and best practice one in the same thing?

- One of the most important measures is if schemes have got community support
- If we don't have local people 'with us', we are unlikely to be able to say schemes represent best practice, however technically "excellent"

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Speaking of the public…

- Members of the general public seem to be increasingly hostile to projects of the sort we're aiming to progress
- We therefore need to be clearer on what people need and want, and involve them in the decision-making
- The public in the UK do not at this stage generally accept the case for restoration

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Public opposition at Donna Nook

- An EA scheme on the south bank of the Humber which has had a very difficult beginning, failed to get planning consent initially, major local opposition that hasn't gone away
- Construction very advanced, but there may still be months or years of legal and public argument, it may 'blacken' the name of restoration in the UK, even if it is made fully operational

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Donna Nook, Humber

What about austerity, does it change what we should do?

- It's going to be harder to implement restoration schemes, less money around, but also more political, public and commercial pressure to spend what money there is on "essential" (only if it supports growth) work
- We need therefore to demonstrate restoration work is hugely valuable (health and wellbeing benefits etc)!
- Carrying out ecosystem services assessments may be one of the most important tools in this respect

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Concluding remarks

- It's essential we restore lost and degraded habitats
- In some cases we are legally obliged to restore, but it's also simply hugely in our interests – coastal and wetland restoration is some of the most valuable work we could possibly do
- We're carrying out huge amounts of restoration work, and are generally achieving good results

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Concluding remarks

- “Perfect” restoration is unachievable however, and so if we want to eliminate damage, the only response is to not develop
- The pressures for development and growth are immense however, our tasks are to try to ensure damage is minimised, to improve the quality of our assessments

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Concluding remarks

- Finally, we need to try to bring a rather sceptical public, and many sceptical politicians ‘on board’
- To repeat myself, coastal and wetland restoration is some of the most valuable work we can ever do, but essential we make that case simply, clearly and effectively.

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And a final comment from Tony Juniper…

"Properly maintained and managed natural systems are often more effective (and often cheaper) than concrete engineering works. We need urgently to harness natural systems, and use wetlands, reefs forests and others to buffer societies from shock."

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Questions?