

**SEA DEFENCES ON THE MANHOOD PENINSULAR.**

Brian Poole and I attended a workshop on the Manhood from 14 - 19 March 2001. The workshop presented an innovative means of tackling the complex economic, ecological, and cultural issues arising from sea defence works. It also raised some policy Issues for the Trust, both strategically and in relation to Ferry Field Nature Reserve and Pagham Harbour LNR in general. This paper presents an account of the workshop, and of my conclusions, for the Committee to consider.

My policy recommendations are at the end of the paper, on page six.

Most of the participants were from NIROV, the Dutch Institute of Spatial Planning. They Included Planners, Landscape Architects, Coastal Geomorphologists, Sea and Flood Defence Engineers, and Ecologists. There were also UK participants from various consultancy and engineering firms, Local Authorities, Universities, and myself from Sussex Wildlife Trust. Some local officers and residents made presentations or helped in discussions with local knowledge, incl. Chi Harbour Conservancy, the EA, and Mr Bunn, owner of the Selsey Caravan Park. Other local people sat in on sessions, theoretically as observers although as they had their own agendas they tended to participate actively!

The meeting will be written up by the organisers officially in due course.

**Background**

The Manhood has several problems that have frustrated local residents including

- Perceived inadequate sea defences around the whole coast

Selsey has regular sea flooding problems, while the Witterings are vulnerable. East Head at Chi a our mouth is eroding rapidly, raising concerns about the beauty spot and the effects on traffic in and out of the harbour. The Medberry frontage (aka Bracklesham Bay) is a particular concern as it protects a caravan park worth £40m to the local economy plus a lot of tow lying ground. The low land is the former natural estuary that stretches around the "island" of Selsey to Ferry Field and the remaining, unreclaimed area of Pagham Harbour.

- Pressure for more housing from Chi DC - OOOs of new houses in the next decade.
- Poor road connections, esp to the A27 at Chi where the lack of a grade separation results in very long tailbacks at rush hour and peak tourist times.
- Lack of local economic opportunities other than tourism and horticulture
- The spread of unsightly glasshouse horticulture (the Manhood supplies Tesco UK with all its home grown lettuce, to give an idea of the industry's importance)

One might add from an environmental point of view

- Loss of intertidal habitat due to sea level rise
- Lack of water to supply new horticulture and housing
- Pressure for road "improvements" on the peninsular itself

Two local residents, Carolyn Cobbold and Renee Santema, felt that discussions were going nowhere. Local people felt abandoned by the Authorities, esp re sea defences, and positions were becoming increasingly entrenched. The division of responsibilities and apparent lack of co-ordination between the EA and Chi DC and Central Govt was also a significant problem.

Renee, who is Dutch, observed that in the Netherlands these matters were handled differently - all water and flood management issues are settled first and all other development decisions follow - and so the NIROV visit was born. NIROV holds an annual interdisciplinary workshop to look at a particular area and devise solutions to its economic and social problems, normally (being the Netherlands) with major flood defence elements. Renee invited NIROV to hold its workshop overseas for the first time, and Carolyn and Renee raised the £30,000 needed to stage the event. As a result they brought in about £750,000 worth of expertise!

### **Agendas**

It was clear that the locals at large expected the Dutch to endorse "proper" hard sea defences and no retreat, managed or otherwise. Meanwhile the EA and Chi DC were nervous that NIROV would produce results different from theirs and that this would be politically embarrassing. The two organisers hoped that the Dutch, as credible outside experts, would help to build a consensus and overcome the rather fixed ideas that had developed on all sides.

### **Methods**

On the first day we had a study tour looking at the Harbours, caravan parks, etc. We then broke into several working groups, some all Dutch and some mixed. These groups brainstormed solutions, each covering all aspects; economy, transport, agriculture, tourism, development, ecology, and above all sea defence. The groups reported back as their ideas unfolded.

It rapidly became apparent that not one group had gone for the no retreat option, much to the consternation of the locals some of who assumed that the groups had been told not to consider fixed defences or that the outcome was otherwise rigged (it wasn't!).

In response an additional group was set up to look at the costs and consequences of hard defences round the whole peninsular. I also participated in this group.

### **Results (summary from my notes only - see eventual conference report for full details)**

#### **Sea Levels**

- Currently rising by 80mm/yr, roughly 50mm of true global sea level rise due to climate change and 30mm local effect due to sinking of the SE England following the end of the last Ice Age as Scotland bobs back up now the weight of the ice sheet has gone. This means a rise of 80cm in the next 100 years based on current best estimates.
- Increased storminess expected; storms will get bigger, peak storm surge waves get bigger still, and (probably) the frequency of big storms increases, so that what was a 1 in 100 year event might end up as a 1 in 20

- These predictions assume that there is no major shift in weather patterns e.g. no change in the direction of the Gulf Stream
- It is important to distinguish between overtopping and/or spray flooding, which can badly damage properties and perhaps cause injuries but which are not normally a significant Threat to life, and a breach in defences which would send a wall of green water inland. A breach could be a very significant threat to life; as an extreme but plausible scenario, a high tide breach in summer in Selsey caravan park would send a 2m high wall of water right to Ferry Field and might kill 10,000 people - The park holds 12500+ and is often full in The season.

### Fixed defences

- There was general agreement that Selsey would still be there in some form whatever was done, at least for the next 1000 years or so, but that it would get steadily smatter! Steady loss of properties to the sea following abandonment of sea defence would however be socially unacceptable, causing economic problems, lack of investment, and risk to human life.

Full fixed sea defences would cost c. £30M for a 7.5m sea wall at Selsey to protect against a 1:100 storm surge (2000 levels - storm surges may get more frequent). To build it the outer seafront row of houses would need to be demolished and replaced by a "boulevard" - an attractive recreational area in front of The top 1m wave return wall which would have a hidden true function as a concrete shock absorber.

- The exposure at the Witterings is less and a £20m defence would give the same level of protection There.

In both cases spray and shingle would still come inland and cause damage during storms, particularly to (newly) seafront properties, but no breaching or major overtopping would occur. Note also that the ground floor views would no longer be of the sea but of the back of the wall; sea views could be had only from The first floor.

We looked at rock island sea defences - they might have some merit but looked more expensive than the alternative of recharging the beaches. Incidentally wave action and current are opposed so longshore drift is not a big problem here.

- A full sea defence for the 4km Medberry frontage would cost £60 - I 20m (total UK sea defence spend is currently c. £350M). The EA has suggested a 40m retreat and a new shingle/clay bank, costing c. £1 OM but good for only 10 - 15 years. At present the bank overtops 1:1 (i.e. every year) and it is getting worse. However The big fear is a breach with many dead. Even in winter, when the park is supposedly closed, there are people there. In summer 10,000+ are at risk, and a breach could happen any time.

### General Sea defence principles adopted

- Maintain existing communities
- Solutions must be cost effective but human life must be protected
- Do not allow developments now which will increase the risks in 100 years time when present defences may no longer be sustainable (no permanent development below The 5m contour, moveable assets only e.g. caravans in the 3 - 5m zone, absolutely no new seafront development anywhere). Excessive sea defences lead to complacency and new built developments which may restrict sea defence/retreat options in the future when costs and risks may be very much greater.

- Rock is available as a by-product of Norwegian marble quarries and can be considered sustainably sourced. However The shingle and sand resource is finite and There are questions about the environmental impact of marine dredging. We did not address the environmental cost of producing concrete.
- I would add that there must be net nature conservation gain to offset coastal squeeze, and that The two harbours' SPA conservation status means They must be protected from damaging developments. However Sussex Wildlife Trust and, locally, EN, are willing to consider losses provided they are offset elsewhere. Most obviously we favour natural coastal processes combined with managed retreat rather than a "fortress nature reserve" response to rising sea levels.

### **Areas of consensus amongst the teams**

There were many and varied outputs but this is a summary of areas where there seemed to be some agreement.

- Chichester flood relief was best achieved by restoring the Lavant to its original (pre Roman) course down Pagham rife, and managing the rife to allow the floodplain to operate properly. Remove all agricultural flood defences, undepen the river and allow it to meander, manage as wet grassland, etc. No residential properties affected.
- The Medberry frontage in no way justified a full sea defence. One team had a "bike dike" here, designed to overtop but not breach, with managed retreat through Pagham so that the old estuary became wet grassland with a saline influence, but most groups opted for a controlled breach allowing a new estuary and saltmarsh to form. Both options require the caravan site to move. All teams stressed the environmental, landscape, and tourism benefits of de-intensifying the old estuary up to the 5m line.
- However, there is a serious and urgent problem with a potential breach through Medberry breaking right Through to Pagham, followed by tidal scouring in the new channel. This could produce an irrecoverable situation with lives at risk and Selsey permanently cut off. The road past Ferry Field therefore needs to be made into a wider structural dike to prevent break through. It could incorporate tide flaps to allow controlled water movement if needed by the overall scheme. This would involve significant landtake from Sussex Wildlife Trust Ferry Field and improvements to the road. Given the risks to life **I strongly recommend that Sussex Wildlife Trust should not object to this work, despite the environmental impact.** We should press for binding compensatory habitat creation in the old estuary, either as new wet grassland or new saltmarsh according to the details of the final proposal.

The 2km or so of dike needed would cost up to £10m for a dual carriageway width (doesn't have to actually be built as a dual carriageway road, however, provided it is structurally robust).

- Both scenarios require the building of sea defences to the rear of Selsey, recreating Selsey Island. These would cost c. £10m but do not need to be anything like the defences exposed against the open sea, and might be partly funded by development (e.g. of a replacement caravan park!). Between the new inland dike and the 5m contour land uses such as tourism and caravan parks can be built - things that do not create fixed assets and future risks. One option is to build houses and a small light industrial estate on the remaining undeveloped parts of Selsey island that lie above the 5m line (the "stone island" option - a ring sea fortification with high class profitable development inside which would in turn pay for the costs of the defences).

- Some similar defences looping inland are needed for Bracklesham and the Witterings but they back onto 5m land anyway so this is not such a problem as at Selsey.
- The current EA plan, for a small retreat at Medberry to buy 10 - 15 years, makes sense as it allows time for the necessary geomorphological and sediment modelling studies to be done and the relocation of the caravan park to be done cost effectively and without too much disruption to the business.
- All groups favoured general managed retreat around Chichester Harbour, to the 5m contour, except where properties/settlements were located. The Harbour is v important economically, and the facilities and navigation need to be protected, but there is plenty of non essential land to allow The saltmarsh etc to advance inland.
- All groups thought that the tranquillity of the Manhood was a major asset, helped by the fact that the large caravan trade tended not to spill out into the surrounding countryside. Chi Harbour was a major economic asset but again this didn't spill out too much. Apart from a possible hotspot in Selsey town all thought That major development should go (if it must go somewhere) near to Chichester, south of the A27, near to the main road, station, jobs, buses, services, etc. Imaginative use of new and future gravel pits to make water features could make this housing very attractive.
- Moving the greenhouse industry away from the poor roads of the Manhood next to the A27 seems like a good idea all round - Chi DC can facilitate this too.
- None of the Dutch could work out why the cycle network for transport and tourism is non existent! They thought it was so obvious That They felt embarrassed to ask why it wasn't in place years ago  
- how could it not have been done?
- Grade separation of the Manhood/A27 junctions in Chichester was discussed. If there is development south of The bypass it is inevitable, likewise if Selsey is expanded. However, much of the charm of the area is its quietness and improving the roads might just attract more development. One solution is to have a new main road to Selsey which deliberately avoids connecting with the other settlements - for thru traffic only. This helps make the minor roads more cycle friendly too.
- Some thoughts about encouraging organic agriculture and processing to maintain farm economy and add value when glasshouse production shifts.

### **Presentation of results**

Results were presented to WSCC, Chi DC, EA, EN, locals, etc, on the Monday at County Hall and generally welcomed warmly. EA got vindicated re Medbeny, Chi DC got backing to help get Govt £for sea defences, we got endorsement for managed retreat and wildlife restoration, and Chi DC officers got backing for development at Chichester where They had advised rather Than on 'Manhood where councillors wanted to dump it as far from their voters as possible! Even the locals, (bar Mr Bunn the caravan owner and the farmer who owns the old estuary) seemed pleased; they got endorsement for sea defences for their towns.

John Kilford (WSCC) will reconvene a meeting asap after the elections to progress.

## Conclusions

An extraordinary example of local action, and a great achievement for Carolyn Cobbold and Renee Santema. There will be follow up which Sussex Wildlife Trust should participate in - our presence helped ensure that wildlife got full consideration and raised our standing with EA, Councils, and locals. This could be a blueprint of a national approach to consensus building about the difficult issue of sea defence, and we need to be in there.

For Sussex Wildlife Trust;

- Accept the need for widening and strengthening the road connection at Ferry Field
- Press for Stewardship to target land below the 5m contour around the harbours and in the old estuary
- Press for nil development below the 5 m contour or along seafronts except for moveable summer caravan facilities within Selsey ring (the NE area works best in planning/sea defence terms)
- Accept the development of new caravan facilities as above, conditional on removal over time of the old ones
- Accept a new road to Selsey and/or grade separation of the A27 junction if they are part of an Integrated transport solution designed to reduce traffic elsewhere on the peninsular
- Push for new housing, if it is to be somewhere, to be on the outskirts of Chichester & of the bypass near to good public and other transport links and jobs (**sustainability**)
- Accept the development of new glasshouse and horticultural packaging facilities on the A27 E of Chi as above, conditional on removal over time of the old ones on the peninsular.
- Accept hard sea defences for Selsey, Bracklesham village, and the Witterings, and a 10 year soft defence as proposed by EA at Medberry, but vigorously oppose any hard defences there.

Bill Jenman 27.03.01