Beyond dredging: new ways with curtains

Ecobarrier curtains were used during the reintroduction of water around the Abu Dhabi Louvre. Photo: Ecocoast

The silt curtain barrier provides a clearly visible line, showing the dramatic difference in turbidity. Photo: Ecocoast

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Silt curtains – turbidity barriers – 'are typically used to contain silt spread around dredging and land reclamation sites', said Chris Reeder of Ecocoast.

Firstly, it's worth noting there's no need to fully enclose the area to have "a significant impact" he underlined. These curtains act as a settlement pond: "Since the movement inside is much lower than outside, the particles have time to settle from the upper water body," he explained, reducing the area of spread and chances of the silt being re-suspended. He added: "As a result, a curtained area can contain the majority of the turbid water."

While they are often temporary installations to mitigate the impact of dredging or reclamation works – Ecocoast's have been utilised in the Middle East's massive port construction projects – they are also finding a place in Europe's well-used, but often historically polluted waterways. The silt on the bottom can contain heavy metals or other chemicals, including antifouling deposits from less enlightened times, so transport into ecologically sensitive areas downstream has to be minimised.

But they've begun to extend their reach, and Reeder admitted initial surprise at "how far these silt curtains are moving from their traditional roles".

Take their adoption in dewatering projects: one interesting example is their use in the construction of the innovative Louvre in Abu Dhabi, UAE. This extraordinary architectural wonder comprises no less than 55 buildings and has been described as a 'museum city in the sea'. But creating it was tricky: firstly a broad footprint was reclaimed then, after construction, the surrounding earth was dug away, the water returning to lap against the courtyard walls.

However, given the 3m depths outside, there was just a chance that something might spring a leak during the re-flooding operation. While the pumps could be reactivated and the issue eventually resolved, the potential for wet mud to despoil these pristine, art gallery spaces "was a risk not worth taking", said Reeder. Therefore, 700m of silt curtains were installed around the buildings to prevent the worst of the potential damage.

The possibilities go on and on. Some are pragmatic: keeping the sediment out of power plant inlets ("you don't want sediment in the cooling water" he pointed out), holding back the algae cover on reservoirs and even preventing silt flowing from storm water outlets. They could also play a part in answering agricultural challenges: "There are a lot of narrow waterways and trenches cut into farming lands in the Netherlands and Germany, but people are now becoming aware that fertiliser run-off can be a pretty large problem," said Reeder. He added that installing silt curtains "will reduce the flow washing down from the banks, and therefore the pollutants entering the reservoirs".

Other applications are rather imaginative: for example, these curtains have been used to encircle the area around a glass viewing platform, allowing the public to see further into the underwater environment.

As a result, Reeder and the Ecocoast team are now actively exploring the crossover potential. However that, inevitably, demands further change, over and above the usual demands of current, waves, depth, silt type, regulations and so on. "The products are evolving," he said: for example, those that stay in place permanently are more robust than those on temporary sites "and saltwater environments need a slightly different handling to freshwater".

But the company is prepared to push the envelope even further: "I see the products being adapted to specific projects," he said. "We aren't afraid of getting into different areas, working with customers to come up with new solutions."

By Stevie Knight