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Babbage
Cleaning up oil spills

A golden fleece?

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BIELLA, in northwest Italy, is the centre of a cluster of woollen manufacturers and the home of Ermenegildo Zegna, a luxury clothing brand. A group of the town's businessmen have, however, come up with a scheme far from the catwalks and seasonal collections. They plan to use wool, which is good at repelling water and absorbing oil, to soak up oil spills. The idea came to them after the Deepwater Horizon disaster and it would, they reckon, have worked better than the containment booms, chemical dispersants and other methods deployed in the Gulf of Mexico. Earlier this year, Tecnomeccanica Biellese, an engineering firm that makes machinery for the woollens industry, carried out experiments using greasy wool to see how good the fleece was at gathering oil. It turned out to be very good. Coarse wool (the cheapest sort, with a fibre diameter of between 25 and 40 microns) was able to absorb ten times its own weight of heavy fuel oil, a refinery product similar to crude. Moreover, the oil could be squeezed out and the wool reused. Indeed, even

after a dozen immersions in oil, for between 15 and 20 seconds each time, the wool's absorptive capacity did not decline.

Moving out of the laboratory and onto the water with a working oil-collection system is the next step. In March the businessmen, who have called their project Wool Recycle Eco System, obtained patents for a containerised kit that can be set up in boats to deal with small spills, and for a bigger ship-based system to tackle large ones.

Mario Ploner, the managing director of Tecnomeccanica Biellese, says the ship-based system will use external booms running parallel with the vessel's sides to channel oil onto wool that has been spread over the surface of the sea. Mechanical mixers fitted between the booms and the hull will increase the wool's absorptive capacity. As the ship moves through a spill, the oil-impregnated wool will be gathered mechanically up ramps and taken into the ship. As the wool is transported up these ramps any droplets of water attached to it will be shaken off. Once on board the wool will be pressed to recover the oil and then reused.

Mr Ploner estimates it would cost about €1m ($1.5m) to equip a 50-metre vessel to carry ten tonnes of wool. That would be sufficient, in optimum circumstances, to recover over 1,000 tonnes of oil.

In practice, he reckons, cleaning up the Deepwater Horizon spill of almost 5m barrels would have needed around 7,000 tonnes of wool. At a current market price of less than $1 a kilo, that does not add up to a huge sum for an industry as big as Big Oil. It would, on the other hand, be a nice little earner for sheep shearers.