

# Science for Environment Policy

## New 'bird-washing machine' dramatically improves survival of birds caught in oil spills

**Oil spills can decimate seabird populations.** Some birds can be saved, if the oil is washed from their feathers in time; however, this long process is stressful for the birds and requires numerous volunteers. Researchers have now developed a 'bird-washing machine' which reduces the washing time from two hours to four minutes. When trialled on oiled birds rescued from the Caspian Sea this resulted in a substantial increase in survival: 88.5% survival after seven days compared to 50% survival with current washing techniques.

**Since 1970 more than 5.17 million metric tonnes of oil** have been released in to the world's oceans from more than 1800 reported oil spills. Such disasters can have serious impacts on [marine wildlife](#). In the case of seabirds, the oil sticks to their feathers, preventing them from flying, reducing their buoyancy, and making movement difficult. Birds trying to remove the oil can ingest it, leading to poisoning.

Removing oil from birds is therefore an important part of limiting the ecological effects of oils spills. However, care needs to be taken in how this is done. For example, cleansing solutions must be chosen which can disperse the oil, but are non-toxic to birds. Cleaning of birds is also a laborious process, requiring around three people and about two hours to wash each bird by hand. This process is highly stressful for birds and is associated with a high rate of mortality.

Researchers have now developed an automatic 'washing machine' for cleaning oil from birds while minimising stress. The machine consisted of a stainless steel basket, in which the bird is placed, and a larger surrounding structure. The surrounding structure rotates and moves up and down around the static bird cage, using a set of 19 nozzles to spray water and cleansing solutions on the bird. The machine operates a four minute wash cycle for each bird, dramatically reducing the time the bird needs to be held in a stressful situation.

Furthermore, the researchers also created a new cleansing solution, of two parts hydrogen carboxylic acid and five parts acetic acid that was effective at dispersing oil but non-toxic to birds. The whole structure, including all parts such as reservoirs, pumps and mixers, is mounted on a wheeled trolley, allowing mobility.

The bird-washer was tested at the Anzali Lagoon, in the Caspian Sea in the northern Iranian province of Gilan. The Anzali Lagoon hosts many native and migratory birds, but has high levels of pollution, including oil discharges. Oil-covered birds were rescued over 40 days between January and February 2013. The birds were visually inspected to assess if they had a poor, medium or good chance of recovery. Birds with a medium chance of survival were selected. In total 26 birds were washed, and kept for observation for seven days before release.

Of the 26, three died within the first four hours, and the remaining 23 survived through to the end of the observation period. This rate (11.5%) compares favourably with current forms of washing which have a survival rate of just 50%, the authors report.

Other automatic bird-washing machines have been described and used. However, this machine has a number of advantages over the alternatives, say the researchers, including increased portability, reduced washing time and lower energy consumption.



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