Fact Sheet

PREVENTING WATERFOWL FROM EATING POISONOUS PARTICLES

PROBLEM

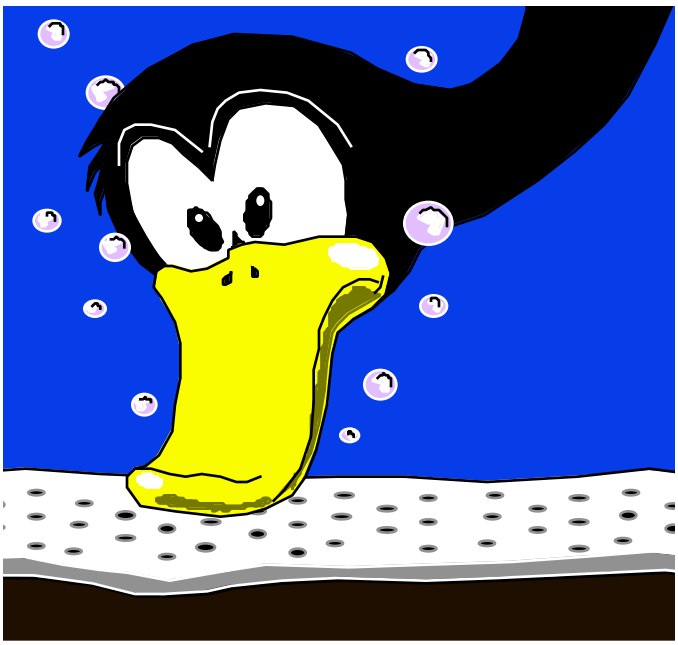
Lead-shot contamination of wetlands, and resulting poisoning of waterfowl who ingest the shot, is currently a significant environmental concern. In a similar contamination problem, shallow ponds in Eagle River Flats (ERF), Alaska, contain white phosphorus (WP) particles. Ingestion of these particles causes approximately 1000 waterfowl deaths annually in ERF alone. Species that circulate sediment through their bills, retaining food-sized particles for ingestion (e.g., dabbling ducks) are the most susceptible to this poisoning.

Remediation studies included placing geosynthetic barriers on pond bottoms to prevent waterfowl from accessing WP. Geosynthetics were candidates for this because waterfowl cannot put their bills through them, they resist damage caused by large mammal traffic, and they are easy to place. In initial tests, portions of geotextiles placed on pond bottoms bulged above the water surface within a month of placement. Gas bubbles, limited by the size of the geotextile pores, could not develop enough buoyancy to overcome the downward force of gas/water interfacial tension exerted in the water-saturated geotextile pores. Thus, the gas coalesced into a large bubble and "floated" a portion of the material to the surface.

SOLUTION

A patented geocomposite barrier containing larger holes to permit gas to escape was developed (U.S. Patent No. 5,601,906). Studies conducted in ERF indicated that these barriers did not float to the surface as did the unperforated geotextiles. The barriers also helped prevent underlying contaminated soil from intermixing with the sediment above it in the presence of strong water currents. Also, loading tests that simulated the force exerted by moose walking on the barriers revealed no damage to the barriers.

This product is ready to be tested as an inexpensive means to prevent wildlife from accessing pond (or other) sediment that contains poisonous particles. Potential applications include lead-shot-contaminated ponds (e.g., near shooting ranges).



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