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17 Laboratory and Field Evaluation of AquaBlok® to Reduce Mortality of Foraging Waterfowl at Eagle River Flats, Fort Richardson, Alaska. P.A. Pochop and J.L. Cummings, U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Animal Damage Control, Denver Wildlife Research Center, Denver, Colorado. Eagle River Flats is an artillery impact area and is also an important spring and fall waterfowl staging area. However, white phosphorus deposited in the sediment by certain types of explosives, has been found to cause mortality of large numbers of foraging waterfowl on Eagle River Flats. This study evaluated the effectiveness of AquaBlok® barrier system as a physical barrier to foraging waterfowl. A laboratory trial was conducted to evaluate the physical characteristics, application rate and longevity of AquaBlok® when applied to bottom sediment in a simulated pond setting. The laboratory trial indicated that the AquaBlok® appeared to maintain its structure under mallard *(Anas platyrhyncos)* use. The field trial was conducted at Eagle River Flats, Fort Richardson, Alaska. Six mallards each were placed in a control (7 X 20 m) and treated (7 X 7 m) pen for a pre- and post-treatment period. During a 6-day pre-treatment period, all of the ducks died in the control and half of the ducks died in the AquaBlok® pen. During the post-treatment, all of the control ducks and none of the AquaBlok® ducks died. Inspections of the AquaBlok® 42 days post-application indicated that algae had begun to grow on it. A large scale field test is warranted to determine the feasibility of using AquaBlok® as an interim remediation action on Eagle River Flats to reduce waterfowl mortality caused by white phosphorus.