

EFFECTS OF DETONATION OF HIGH ENERGY EXPLOSIVES ON AQUATIC ORGANISMS

Thomas L. Linton
Department of Wildlife & Fisheries
Texas A&M University
College Station, Texas 77843-2258

ABSTRACT

The results of an extensive literature review and field experiments regarding the effects detonation of high energy explosive have upon various aquatic organisms are reported. These results were used to modify regulatory permitting criteria in Texas. Three separate field experiments were conducted. In the first study, surface placed charges were used in a marine habitat. In the other two, the charges were placed in drilled holes. In one, which was in a freshwater environment, the drilled holes were filled with drilling mud after placement of the charges. In the second, which was in an estuarine environment the holes were allowed to sit for thirty days prior to detonation to permit natural back-filling to occur by water transported sediments. A variety of aquatic organisms held in wire cages were exposed to detonations. Immediate and long-term effects of the exposure were determined based on external and internal visual observations. Damage to aquatic organisms was found to be reduced by placing the explosives in drilled holes and back-filling the holes prior to detonation of the explosives.