A HISTORY OF THE CONVERSION FROM LEAD SHOT TO NON-TOXIC SHOT FOR WATERFOWL HUNTING IN ALASKA

1842 C.J. Fuchs recognized a lead poisoning problem in waterfowl in Germany.

1874 The first die off of waterfowl from lead poisoning in the United States was recognized in Texas. (Phillips and Lincoln 1930)

1894 George Bird Grinnell, in an article in *Forest and Stream*, described to American sportsmen the lead poisoning of waterfowl from spent shotgun pellets. Again in 1901, in "*American Duck Shooting*", Grinnell provided a detailed account of lead poisoning problems on North Carolina's Currituck Sound and two lakes near Galveston, Texas.

1895 The repeating pump shotgun is introduced. The California legislature passed a law forbidding its use, but it was soon repealed.

1918 Migratory Bird Treaty Act passed by Congress. This act established federal authority to regulate hunting of migratory birds. Under the Migratory Bird Treaty Act, all areas of the United States are closed to waterfowl hunting unless opened by the Secretary of the Interior through regulations developed by U.S. Fish and Wildlife Service (USFWS).

1919 Dr. Alexander Wetmore's field observation and controlled experiments conclusively established the link between the ingestion of lead shot by waterfowl and lead poisoning. Wetmore also linked reduced reproductive capacity in birds to sublethal doses of lead.

1935 Miles Pirnie of the Michigan Department of Conservation wrote that "lead poisoning is the disease that takes the greatest toll of adult ducks in this section of the country".

1936 Researchers R.G. Green and R.L. Dowdell proposed the use of lead and magnesium pellets that would disintegrate in water or the gizzard. This and all subsequent testing of lead alloys proved toxic to waterfowl.

1940's Several authors (Osmer 1940, Adler 1942, Cottam 1949) discussed the dangers of lead poisoning to waterfowl from the ingestion of spent lead shot.

1950 Experimental testing of steel (iron) shot for waterfowl hunting.

1959 Frank Bellrose of the Illinois Natural History Survey published "*Lead Poisoning as a Mortality Factor in Waterfowl.*" Bellrose examined data from over 36,000 duck gizzards collected throughout the United States for ingested shotgun pellets. He estimated nationwide losses of ducks from lead poisoning at 2 to 3 percent of the fall population (1.6 to 2.4 million ducks per year).

1970 International Association of Game, Fish, and Conservation Commissioners (IAGFCC) recommended unanimously that the Bureau of Sport Fisheries and Wildlife (now USFWS) take "immediate steps" to "bring about an orderly transition from the use of toxic to non-toxic shot for all hunting of migratory birds" and that "absent a compelling reason by the industry," regulations prohibiting toxic shot should be in place by the 1973 waterfowl hunting season.

1972 The National Wildlife Federation (NWF) petitioned the Department of the Interior for non-toxic shot regulations in migratory bird hunting.

1974 USFWS proposed use of steel in selected areas in the eastern U.S.

1974 IAGFCC called for local, not flyway-wide, prohibition of the use of lead shot through state-federal cooperation - a backing off from its 1970 position.

1976 USFWS released the Final Environmental Impact Statement (FEIS) on *Proposed Use of Steel Shot for Hunting Waterfowl in the U.S.* This proposed that only non-toxic shot be used for waterfowl hunting in designated States or specifically described areas within States to eliminate lead poisoning. An implementation schedule was proposed, beginning in the Atlantic Flyway in 1976 and expanding to the Pacific Flyway by the 1978 hunting season.

The National Rifle Association (NRA) brought suit against the USFWS seeking a declaration against the establishment of non-toxic shot zones and arguing that the 1976 EIS was inadequate. The District of Columbia District Court held that the EIS adequately assessed the effects of steel shot on hunters, waterfowl, and the environment and, since lead shot poisoned waterfowl, the FWS decision to promulgate non-toxic shot regulations had a rational basis and was not arbitrary as the NRA claimed.

1977 The implementation schedule proposed for the Pacific Flyway in the 1976 EIS is published in the Federal Register, November 23, 1977. For Alaska, the proposal calls for non-toxic shot to be used in Upper Cook Inlet within 10 miles of salt water. The Alaska Department of Fish and Game (ADF&G) opposes the requirement to use non-toxic shot in Upper Cook Inlet. ADF&G submits "*The Case for Retention of Lead Shot for Waterfowl Hunting in Alaska*" as the state's comments on the USFWS proposed regulations.

1978 The "Stevens Amendment", an amendment to the Annual Appropriations Act to the Department of the Interior, was passed by Congress along with the Appropriations Act. The "Stevens Amendment" precluded the USFWS from exercising its authority under the Migratory Bird Treaty Act to enforce a ban on the use of toxic lead shot in hunting waterfowl without permission of state conservation agencies. The FWS retreated from its implementation program and left the states largely responsible for implementing any non-toxic shot program.

1979 The International Association of Fish and Wildlife Agencies (IAFWA) took responsibility for coordinating implementation of non-toxic shot programs on behalf of the states. IAFWA called for development of non-toxic shot regulations through the flyway councils. This also led to the establishment of the Cooperative Lead Poisoning Control Information Program (CLPCIP) in 1982.

1980 Results of cooperative study between ADF&G and USFWS conducted between 1974 and 1979 found that Cook Inlet was the only area in the state where greater than 5 percent of the ducks had ingested lead shot in their gizzards. For 1,064 gizzards collected in Cook Inlet, 15.1 percent had one or more ingested pieces of shot, and 12.7 percent of the wing bones examined from Cook Inlet contained over 30 parts per million lead. The USFWS designated problem areas if 10 percent or more of birds had this level of wing bone lead. The ADF&G again recommended retaining the use of lead shot for waterfowl hunting in Alaska.

1981 Pacific Flyway Council adopts 100 dead birds as criterion for lead poisoning problem areas.

1982 Establishment of Cooperative Lead Poisoning Control Information Program (CLPCIP), an educational group composed of 13 member states, the USFWS, Hoover Precision Products, Federal Cartridge Corporation, and National Wildlife Federation (administrative support).

1984 The Wildlife Society, an organization of professional wildlife biologists, called for the elimination of lead shot for waterfowl hunting as soon as possible, but not later than 1989.

Pacific Flyway Study Committee recommends lower threshold criteria for lead poisoning areas.

1985 USFWS published proposed guidelines establishing minimum criteria for identifying non-toxic shot zones for waterfowl hunting.

The NWF filed suit against the USFWS to disallow hunting during the 1985-1986 hunting season in areas of five states where bald eagles had been poisoned by lead shot. The NWF alleged that because the USFWS allowed waterfowl hunting with lead shot in these areas, bald eagles were being poisoned. The NWF alleged that the USFWS was in violation of several federal laws, including the Endangered Species Act and the National Environmental Policy Act. The U.S. District Court for the Eastern District of California sided with the NWF and prohibited the USFWS from allowing any migratory bird hunting in the disputed areas for the 1985-1986 hunting season. However, if the states mandated the use of non-toxic shot in these disputed areas, then they could be open for waterfowl hunting. This action resulted in the designation of many new non-toxic shot zones by the USFWS in the 1985-1986 season.

NRA appealed the 1985 court ruling cited above (NWF vs. USFWS). The appeal was denied.

Iowa and Nebraska became the first states to ban lead shot statewide for hunting waterfowl.

1986 NWF proposed to the USFWS that lead shot be banned for all waterfowl hunting in the continental U.S. beginning with the 1987-1988 hunting season. Later the NWF sued the Department of the Interior, claiming that USFWS was legally compelled to implement the ban by the 1987-1988 season.

IAFWA called for a mandatory, gradual phase-in of non-toxic shot, culminating in a total prohibition of lead shot for waterfowl hunting nationwide by 1991, starting with counties or areas of greatest hunting pressure. This policy was adopted by the Department of the Interior, in June 1986 as the preferred alternative in the FSEIS.

USFWS published the Final Supplemental Environmental Impact Statement (FSEIS) on "*Use of Lead Shot for Hunting Migratory Birds in the United States*" in response to NWF lawsuit. The preferred alternative proposed by the FSEIS was sufficient grounds for the U.S. District Court in Sacramento to dismiss a suit (1986) filed by the NWF to ban the use of lead shot beginning with the 1987 waterfowl hunting season. This is the basis for the 1991 conversion to non-toxic shot in Alaska. The FSEIS references over 350 papers related to lead poisoning, primarily in waterfowl.

1987 California Fish and Game Commission (CF&GC) filed suit against the Department of the Interior in U.S. District Court, challenging the authority of the USFWS to close areas to waterfowl hunting if the state refused to require steel shot in those areas. The court denied the motions of the CF&GC and dismissed the case. This was a major test of the "Steven's Amendment."

1987 USFWS joins CLPCIP. Winchester Group/Olin Corporation and 25 states are members; NWF and Federal Cartridge Company have resigned.

1988 An ADF&G study on lead shot ingestion and absorption in 574 mallards and pintails collected in 1985 and 1986 from Redoubt Bay, the Susitna Flats, and the Palmer Hay Flats finds 20.9% of all birds contain one or more ingested lead shot in the gizzard and 19.1% have liver lead levels greater than or equal to 2.00 parts per million (ppm). Both these greatly exceed the USFWS former criteria for problem areas: one or more ingested shot in 5 percent of the gizzards sampled, or 2 ppm or higher lead in 5 percent or more of the livers sampled.

1989 Alaska Department of Fish & Game joins CLPCIP and forms cooperative programs with USFWS for Alaska non-toxic shot education programs. Consultant Tom Roster conducts seminars and clinics in Fairbanks and Anchorage.

1991 Nationwide conversion to non-toxic shot is completed; Alaska Board of Game adopts non-toxic shot requirements for waterfowl, snipe, and crane hunting. Lead shot is no longer legal for hunting waterfowl in the United States.

CLPCIP name is changed to Cooperative Non-toxic Shot Education Program (CONSEP). Canadian Wildlife Service joins CONSEP. Canada establishes the first non-toxic shot zones in Ontario and British Columbia.

1992 Australia joins CONSEP and begins non-toxic shot education.

Lead poisoning is documented in a dead spectacled eider and a dead common eider near Kashunuk River on the Yukon-Kuskokwim Delta.

1993 CONSEP develops and tests a new waterfowl hunter proficiency course to improve hunter judgement and skills to reduce wounding losses in waterfowl hunting.

Spectacled eider research finds more lead poisoned birds on the Y-K Delta near Manokinak and Kigigak Island, and increasing levels of lead in blood throughout the summer near Kashunuk River. Twenty-five percent of local ducklings have lead in their blood.

1994 Bismuth Cartridge Company petitions USFWS to approve its bismuth-tin shot as non-toxic for legal use during the 1994-95 hunting season. Testing is not completed, but USFWS grants conditional approval on December 30 for the remainder of the 1994-95 season. Any federally approved non-toxic shot automatically becomes legal for waterfowl hunting in Alaska.

1995 Further research on lead exposure of ducks in the Y-K Delta finds: (1) lead shot in over 11% of arriving spectacled eiders; (2) lead exposure in 25% of spectacled eiders, 20% of oldsquaws, 13% of common eiders, and 2% of greater scaup; (3) over 12% of spectacled eider ducklings had elevated lead by 30 days of age. As many as 25-37% nesting spectacled eider females may have elevated lead on the delta.

Non-toxic shot seminars and shooting clinics are conducted by Tom Roster in Chevak and Toksook Bay. Roster conducts a Waterfowl Hunting Skills Improvement Seminar in Anchorage.

USFWS grants provisional approval of bismuth shot for the 1995 waterfowl season and amends testing requirements for alternative non-toxic shot types. USFWS also initiates regulations to ban lead shot for all hunting on National Wildlife Refuges by 1998.

1996 CONSEP non-toxic seminars and shooting clinics, and patterning clinics are held in Y-K Delta villages. CONSEP Waterfowl Hunter Skills Seminar is conducted in Fairbanks.

CONSEP changes its name to Cooperative North American Shotgunning Education Program (CONSEP) in line with its new emphasis on reducing wounding losses of birds through improved education and shooting skills.

USFWS isses another conditional approval of bismuth-tin shot for the 1996 season and intent to grant permanent approval.

Compiled by: Alaska Department of Fish and Game
Revised August, 1996

Alaska Version