

Arctic Haze Studied

Climate specialists at an international conference in Geneva, Switzerland, have reported that smog and dust from Europe and China may explain a puzzling haze that visits the atmosphere of Alaska, Greenland, and the Arctic Ocean each spring. Climate experts and meteorologists from 40 nations, discussing the arctic haze at the recent meeting, said it contains sulfate particles, produced from burning high-sulfur fossil fuels, traces of vanadium and silicates. Some of the particles were probably blown north from the industrial regions in Europe, while others may have originated in the Gobi Deserts of China and Mongolia. A similar haze also has been reported at the South Pole; scientists are still seeking further explanation of the phenomenon.

Winners in Dirty Air Contest

Most environmentalists can guess which U.S. city has the worst air quality. Los Angeles, famous for its smog, was the easy "winner" in a study published by the Council on Environmental Quality. On 318 days in 1975—the year on which the study was based—its air was "unhealthful," "very unhealthful," or hazardous.

But the list of a representative group of cities contained a few surprises, according to the National Wildlife Federation, which monitors the nation's air pollution in its annual Environmental Quality Index report. The cities, and the number of days on which their air was "unhealthful" or worse were: Denver, 177; Albuquerque, 150; Philadelphia, 150; New York-New Jersey Metropolitan Area, 149; Boston, 147; Houston, 141; St. Louis, 140; San Francisco, 127; Spokane, Wash., 126; Phoenix, 118; Fairbanks, Alaska, and District of Columbia, 90; Sacramento, Cal., 88; Louisville, Ky., 72; Steubenville, Ohio, 60; Cincinnati, 51; Omaha, 40; Memphis, 38; and Wichita, Kan., 25.

Fighting Pests with Pests

Insect pests cause considerable trouble, destroying crops and carrying disease. But the chemical poisons used to kill them can be just as harmful to the air, water, and people.

There is a safer, more natural way to control insects according to "Fighting Pests with Pests," just published by the National Wildlife Federation, located in Washington, D.C. The pamphlet is designed to show children why more and more farmers in the United States are using the natural enemies of pests instead of harmful chemicals to protect their crops.

This new method is called "pest management" and relies on the "three Ps"—insect predators, parasites, and pathogens. "Someday pest management may make most poisons unnecessary," the eight-page illustrated pamphlet suggests.

Included in the publication is a chart

that lists 34 common insect pests and natural ways to control them. For example, chinch bugs can be kept away from corn by planting soybeans nearby as a "trap plant."

Sex Change in Fish

Many fish species are capable of making a complete sex change while adults. One of the speediest examples is the Pacific wrasse. After a two-year study on the Australian Great Barrier Reef, researchers have documented such changes which take only two weeks. Male wrasses guard territories with



harems of from three to six smaller females. If the guardian male dies, neighboring males try to take over. If the dominant female is able to rebuff the males she will begin to change her sex from female to male within less than one hour of the death of the original male. Within two weeks the change is complete and the new male is capable of producing viable sperm.

Such a sex reversal seems to be controlled socially. Each male controlling a harem suppresses the subordinate females' tendency to change sex by actively dominating them. Males are produced only when a fish can successfully establish itself as a harem owner.

The White Whales of Manitoba

The story of twentieth-century whaling in Hudson Bay is one of use combined with scientific study; both ongoing with inter-related goals. The changing role of man and his impact on the arctic is reflected in

changing attitudes towards the beluga, or white whale. No longer extensively hunted, beluga populations today appear both stable and healthy.

In 1931 the Hudson's Bay Company whaling operations were closed down and from 1931 to 1949 hunting was confined to local residents and missions. Whale meat was used mainly as dog food. The beluga fishery came under the control of the Federal Department of Fisheries in 1949. Shortly after, the Adanac Whale and Fish Products Company moved into Churchill. Inuit, Cree, White, and Metis residents purchased licences for \$1.00 to hunt beluga and were paid by the foot for each whale caught.

The whaling season was relatively short, lasting from mid-June to late September. Two men in outboard canoes formed hunting teams. The bowsman-harpooner located the whales and signalled the helmsman during the chase. The oil was sold to commercial companies for use in margarine, lubricating fluid, soap or cosmetics. The liver was made into animal food and the steaks were sold in Winnipeg stores for human consumption. The carcass and bones were ground into 50-pound packages for dog food and fur farms, while the hides were made into leather.

This fishery flourished throughout the 1950s with an average annual catch of 450 whales. It was revived in 1964 after a short period of decline and in 1965 Churchill Whale Products Limited took over operations. By now industry was using the oil extracted from the top frontal portion of the beluga's head to lubricate fine watches and scientific equipment. This oil sold for \$15 a gallon. Other oil was used in margarine which sold at 90¢ a gallon.

In 1965 a local Whalers' Association was formed, but the processing plant was already in serious financial trouble. Constant equipment breakdowns and the closure of mink farms in Manitoba were contributing factors. Then, with the assistance of the Federal Department of Cooperative Services, a local co-op was formed. The plant operated successfully for two seasons before mercury contamination and a decline in commercial sales finally resulted in its closure in 1968.

The Beluga Protection Regulations administered by the Federal Department of Fisheries also became law in 1965. Under this law, sport whale hunting was encouraged, but hunters were required to hire local Indian or Inuit guides. A quota was placed on the number of whales harvested and the amount of meat hunters were allowed to take home. Today beluga hunting is limited to local residents of the Canadian Arctic.

A tagging program which lasted two years was started in July, 1967, by D.E. Sargeant of the Arctic Biological Station of the Fisheries Research Board of Canada. This was organized to learn more about the movement of beluga in the bay and whether different groups, or pods, intermingle or remain separate.

Tagging operations undertaken at the



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