

assure the continuity and comprehensiveness of needed research. This Federal responsibility is vested in the Bureau of Sport Fisheries and Wildlife.

The expected benefit of this research is the preservation of a priceless heritage—the rights of those who wish to seek and enjoy sport fishing, and the right of others to know that the opportunity is there.

ENVIRONMENTAL ACTIVITIES

CONTROL OF SULFUR-BASED AIR POLLUTANTS

Introduction

Air pollution in the United States today shows increasing signs of a rapidly approaching acute stage. Recent estimates indicate that pollutants are being released to the air above our Nation at a rate of 133 million tons per year. Unless important progress is made in the development of air pollution control technology, the 336 million people that are expected to be living in this country by the year 2000 may have to contend with an increase of as much as 60% in pollutant output. Since American industry—a major contributor of pollutants to the air—is outdistancing the population in growth, the pollution rate 30 years hence might be even greater.

Although contaminants from many sources foul the air we breathe, sulfur oxides, resulting principally from the combustion of fossil fuels and the utilization of sulfur-bearing ores, constitute a major facet of the air pollution problem. Recent estimates indicate that almost 25 million tons of sulfur oxides are funneled to the atmosphere in the United States annually. About 60% of these result from the combustion of coal, while another 20% are produced from the combustion of petroleum products—particularly residual fuel oil.

The effect of exposure to low levels of concentration of sulfur oxides for extended periods is not fully understood, but there is ample evidence that high concentrations can severely affect human health and also damage lands, plants, and materials of construction. Increasing urbanization, along with growing population and associated industrial expansion, is raising the concentrations of sulfur oxides in the atmosphere above many cities. The Public Health Service recommends 0.1 part per million (ppm) as the maximum desirable ground level concentration of SO_2 in air, but average concentrations in a few of our major cities may be as much as 0.2 ppm with maximum daily and hourly concentrations of 0.7 and 1.7 ppm, respectively.

Interior Department's systems approach

The Department of the Interior, principally through the Bureau of Mines, is dedicated to a "systems approach" in the search for a solution to the SO_2 -air pollution problem. In this approach the entire situation is considered so as to arrive at a best overall solution in preference to individually optimizing various elements of the problem. The objective is to balance human and natural-resource-conservation needs for reducing emissions of SO_2 against such factors as: (1) Reserves and supplies of low-sulfur fuels; (2) alternative energy sources; (3) alternative methods for suppressing or otherwise abating SO_2 ; (4) processing economics; (5) dislocation of industry; and (6) other important economic and sociological considerations.

Economic and technical considerations

(1) Fuel resources

The United States is fortunate in having tremendous reserves of low-cost coal, amounting to more than one-and-a-half trillion tons. This makes coal our most abundant mineral fuel resource with reserves large enough to last more than a thousand years at present consumption rates. Low-sulfur coal—that is coal with less than 1% sulfur—comprises roughly two-thirds of the Nation's coal resources, but unfortunately it is impractically remote from the areas of greatest need, and thus its required use could involve high transportation costs. Also, more than three-quarters of our coal reserves are comprised of low-quality western subbituminous coal and lignite, both of which are low in sulfur. In addition an appreciable amount of the reserves are widely dispersed and not available in blocks large enough to be classified as long-term supply sources for electric utility plants. Furthermore, some low-sulfur coal is in deposits whose geological conditions entail high mining costs.

One possible economic solution might be to take advantage of mine-mouth power generation together with extra-high-voltage transmission, since mines