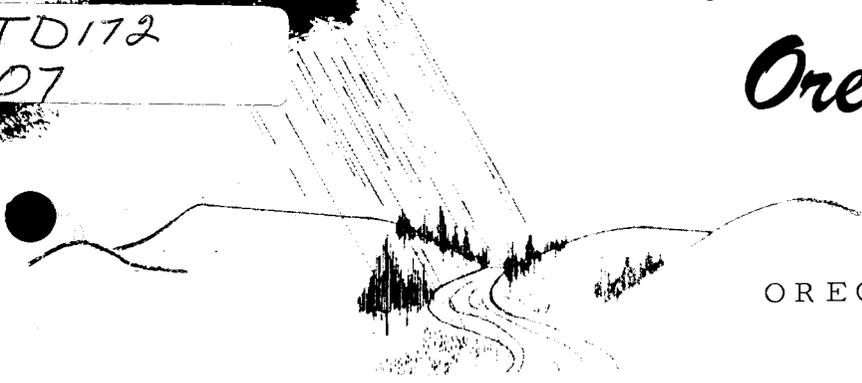


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Oregon's Environment



OREGON STATE UNIVERSITY

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EXPERTS TRAINED AT OSU IN POLLUTION CONTROL

Oregon State University is fast becoming one of the nation's leading centers for training experts in air and water pollution prevention and control.

With the aid of federal grants that now total about \$450,000 a year, the OSU School of Engineering has greatly expanded its graduate training programs in sanitary engineering and air sanitation, Fred J. Burgess, dean of engineering, points out.

This past year, 18 studied for master's and doctor's degrees in air pollution control and 22 in sanitary engineering--water supply, waste treatment, water pollution control, environmental and water resources engineering. Fifty-one have been graduated in the water programs since 1961 and 34 in air pollution since that program was launched in 1963.

Graduates are in big demand by industry, engineering and consulting firms, and by state and federal agencies, Burgess noted. Most of the graduates have remained in Oregon and the Northwest. They are found, for example, in every air and water pollution control agency in the state.

Research programs on which trainees work are keyed to state and regional problems, Burgess said. Projects include influence of log rafting on water quality, estuary pollution, disposal of wastes from pulp mills, field burning, wind-ventilation patterns in the Willamette Valley, etc.

Several of the sanitary engineering graduate students are assisting with research projects at the Pacific Northwest Water Laboratory, located on campus. Various other units of the university are involved in water and air pollution training-research programs as well. These include the Schools of Agriculture, Science, and Forestry, the Department of Fisheries and Wildlife and Atmospheric Sciences, the Environmental Health Sciences Center, Water Resources Research Institute, Air Resources Center, and the OSU Marine Science Center, Newport.

NEW FILM ON SOLID WASTES

Future goals call for even more interdisciplinary programs and greater stress on environmental protection, Burgess indicated.

The Nixon administration estimates that it will cost the United States more than \$105 billion to control pollution over the next 5 years. This would average out to an expenditure by both government and business of about \$525 for every man, woman and child in the country.

A new color film entitled "Waste Materials: A National Resource" has been produced by the National Association of Manufacturers in cooperation with six trade associations. The 13½-minute, 16mm free-loan film focuses on such inadequate disposal methods as open dumping and then illustrates alternatives being developed by private research. Further information is available from NAM's Industry on Parade Film Bureau, 277 Park Ave. New York, N.Y. 10017.

THE 1971 LEGISLATURE

The 1971 Oregon Legislative session passed some important bills regarding air pollution control. A brief look at each might be of interest in considering the value of proper legislation to solve problems.

HB 1066 - The Environmental Quality Commission (EQC) is empowered to establish a permit system for the prevention, reduction, or abatement of air pollution.

HB 1067 - The EQC is authorized to certify anti-pollution devices and types of engine adjustment or modification.

HB 1504 - The EQC shall impose a penalty not to exceed \$500 per day for violations of regulations pertaining to waste discharge, solid waste disposal, or air contamination.

HB 1567 - This bill requires the DEQ and the State Forester to formulate a plan to regulate slash burning.

HB 1570 - Allows the EQC to delegate the authority to grant air pollution variance to "legislative bodies of local units of government".

HB 1573 - Exempts regional air authorities from requirement to post bond in seeking injunctions against polluters.

HB 1574 - The EQC and regional air authorities can regulate traffic and the use of vehicles when substantial danger to health is imminent.

HB 1575 - Allows the EQC and regional air authorities to go to court to enjoin a polluter violating their rules.

SB 38 - This gives control over field burning to the EQC and provides a phase-out date of January 1, 1975.

USE OF INSTREAM AERATORS

Tests of surface instream aerators and of bottom diffuser aerators indicate they can be a feasible and economical alternative to advanced waste treatment under appropriate conditions. Experiments were conducted by a Rutgers University team in the Delaware River near Philadelphia using specially designed mechanical equipment. The diffuser was tested at various depths

(Use of Instream Aerators, Cont.)

up to 38 feet, but its performance in pounds of oxygen per horsepower hour decreased markedly in the deeper water. Performance of the surface aerator appeared to be somewhat improved over results previously found in a shallower river.

Cost estimates and systems analysis led to the following conclusions:

1. That induced oxygenation appears to constitute an economical alternative to advanced waste treatment.
2. That surface aerators can be reinforced to operate economically on large rivers, but can only be used in areas where they will not interfere with navigation.
3. That diffuse aerators of the type tested are closely comparable in economy to surface aerators, and can be used in port areas without interference with navigation.

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PENDLETON IN AIR NETWORK

The weather station at Pendleton is one of ten cities recently designated "regional air pollution monitoring stations" in a network to be supervised by two federal agencies. The monitoring is part of an effort by the World Meteorological Organization.

Atmospheric turbidity will be determined with a sun photometer to measure the amount of particulate matter present. Precipitation will be collected for monthly chemical analysis to detect impurities.

Coordinating the studies are the National Weather Service and the Air Pollution Control Office. It is hoped that there will eventually develop a network which will keep tabs on worldwide air quality.

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Meetings will be held at 1:30 p.m. and 7:30 p.m. on October 28 in Douglas Hall, Douglas County Fairgrounds, Roseburg, to discuss potential water resource development on South Umpqua River.

FUTURE PROBLEMS

In assessing future problems of water pollution in Oregon, the following points would appear to be significant:

*Organic wastes from municipal and industrial sources will continue to be troublesome. Material progress is being made in abating organic waste sources and should continue. However, population and industry growth will partially offset the progress. Requirements for more efficient and sophisticated treatment facilities indicate that more and better trained plant operators are needed.

*The nutrients or enrichment from the breakdown of organic wastes, from detergents and from other sources will pose an increasingly difficult problem. These nutrients will foster the regeneration of organic material in water bodies. The need for advanced and tertiary treatment will become more acute to remove nutrients as well as chemicals, viruses, and other materials not fully removed at the present time.

*Toxic materials from industrial sources, from agricultural and forestry practices, and from municipal sources will continue to be a problem of major import. Several forces are at work here. Human inventiveness will keep new materials entering the market and the environment. Humans tend also to overuse and to be careless about the use of many toxic materials.

*Uncontrolled runoff from parking lots, streets and other surfaced areas poses a special problem. In most Oregon municipalities the storm sewers are connected to the domestic sewer system. During times of high flow, as in the winter, the runoff plus part of the city's untreated raw sewage may have to be directly discharged into the river.

*Thermal pollution or increased water temperature could become a more limiting factor in salmonid production than oxygen depletion in certain streams.

*Withdrawals of water for irrigation and for other consumptive uses will continue to have a major effect on water quality. The progress made to date with abating organic wastes and nutrients for regeneration could be easily reversed by significant diversions.

*Higher agricultural productivity has been based on irrigation and use of chemical fertilizers and pesticides. The runoff from farm lands, coupled with that from concentrated feed lot operations, will become of greater relative significance. These diffuse waste sources are most difficult to control or treat.

*Although the estuaries of Oregon have not suffered to the extent that those elsewhere in the United States have, increased demands due to population growth have, and will continue to have, an increasing effect on the quality of the estuaries in Oregon. It has been estimated that by the year 2000 the population density along the Oregon Coast will increase by 50 percent over what it is today.

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NEW FISH LAB

The Western Fish Toxicology Station (WFTS) has been established as a unit of the National Water Quality Laboratory of the Environmental Protection Agency (EPA). It is housed with the Pacific Northwest Water Laboratory in Corvallis with the mission of undertaking research to define the water quality criteria needed to protect desirable fresh water fish.

Present research is focused on salmonid species such as salmon and steelhead trout. The facilities are quite flexible and can be used with equal success on species such as largemouth bass, bluegills, and minnows. The EPA also conducts related research via grants and contracts with Oregon State University.

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COMBINED SEWER OVERFLOW

A report issued last year gives the result of an extensive investigation of the design, operation, maintenance, and application of combined sewer overflow regulators. The findings and recommendations in the published report point to the need for the development of devices which will allow control of both the quantity and quality of the overflows.

The study was conducted jointly by the American Public Works Research Foundation, the Federal Water Quality Administration, and 25 local agencies throughout the nation. Publication is in two parts--the report and a manual of practice.

There is an awareness that the solution of our combined sewer overflow problem is not the only step in control of pollution into receiving waters. As other sources of pollution are removed or abated, however, overflows and related sources of pollution will remain, unless local agencies have accomplished adequate planning to treat or prevent such pollution. The overflow regulator is one of the keys to minimizing pollution, according to the report.

It is recognized that it is not the only means. However, it is apparent that treatment or control facilities cannot function successfully without adequate and effective regulation.

("Combined Sewer Regulator Overflow Facilities", 11022 DMU 07/70 and "Combined Sewer Regulation and Management - A Manual of Practice", 11022 DMU 08/70. Each \$1.50 from the Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402).