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WESTERN WATER

Energy development in the Western states will greatly intensify existing water problems, according to some Carter administration officials. Assistant Interior Secretary Guy Martin told a Senate energy subcommittee that the large quantities of water needed for electric power generation will have to be obtained from various existing uses. A number of speakers noted that competition for water will become more pronounced.

Water-thirsty projects such as oil shale development, coal slurry pipelines, coal gasification and liquefaction, and cooling for new electrical plants were all cited as being "on the horizon". Agricultural or residential water users are said to be in a poor position to compete with energy industries which can afford to pay greater amounts for water requirements. Concern was expressed during hearings regarding the potential impact on irrigation needs.

Irrigation of farmlands now accounts for almost 90 percent of all water used in the West.

ABANDONED WELLS

Unplugged abandoned wells are a hazard to our nation's potable ground water supplies. Today, millions of dollars of damage can be directly attributed to the contamination of ground water by improperly abandoned wells. The total impact of the hazard, however, is not fully understood, nor apparent. A review of case histories of ground water pollution caused by unplugged, leaking wells reveals the potential magnitude of the problem.

A survey of state laws concerning well abandonment procedures exposes a disparity in the regulations in and among different states. The laws in the traditional oil producing states are generally up-to-date and effective in dealing with abandoned wells. In the remainder of the states, well abandonment laws are ineffective or non-existent. Model legislation on abandoned wells is presented to contrast ineffective legislation with that which would give effective control. By examining the model legislation guidelines, state and local authorities can gain technical insight and legislative perspective, which will enable them to formulate and enact effective laws to protect their state's ground water supplies.

(From *"Impact of Abandoned Wells on Ground Water"*, EPA-600/3-77-095, dated August, 1977)

QUALITY OF LIFE

The "quality of life" in the United States, measured by seven environmental indicators, declined during 1977 for the eighth consecutive year, according to the National Wildlife Federation.

The assessment is contained in the NWF's ninth annual Environmental Quality Index (EQI) report, appearing in

the February issue of National Wildlife magazine.

The EQI study sizes up the nation's environment each year in terms of seven natural resources--air, water, minerals, wildlife, living space, soil, and forests.

In only one of these categories--forests--did the nation improve during 1977, according to the report. It held its own in one other category--air quality--but declined in the other five.

The index figure or "score" for each resource is based on a combination of objective measurements and the subjective judgments of experts in the various fields. Rated on a scale of 0 to 100, the country's forests got the highest mark (75) and its air quality the lowest (33).

VANDALISM REPORTING

The Oregon State Parks and Recreation Branch is undertaking a program to monitor incidents of trespass and vandalism on private lands along the Willamette River Greenway. Important to the success of this program is the development of a form to record when and where these incidents occur. Although data acquired from the use of the form will not lead to the arrest of specific offenders, it will help guide the following:

1. Placement of signs and markers
2. Management of state-owned lands
3. Future law enforcement efforts
4. Public information efforts
5. Cooperative planning efforts

The convenient one-page report form will be available in early spring. This project has been funded by the Mid-Willamette Consortium. For additional information: Bill Adix, Oregon State Parks, 525 Trade St. SE, Salem, Oregon 97310.

SEMINAR ON TOXIC POLLUTION

Major sources of water pollution can be found in nearly every kind of industrial, municipal, or agricultural operation. There are thousands of toxic chemical compounds in use today and new chemicals are being developed every year. Chemical contaminants, such as phosphates, nitrates, pesticides, detergents, trace metals, acid from mine drainage, cyanide, phenols, radioactive substances, solvents, and hydrocarbons, are all products of our technological society and potential threats to our water resources.

Some aspects of the problem will be examined in a seminar series this Spring. The weekly presentations will be open to faculty, students of all ages, and the general public.

- March 30 *"Overview"*
 DAVID DUNNETTE, Department of Environmental Quality, Portland, Oregon
- April 6 *"Algal Bioassay Techniques"*
 WILLIAM E. MILLER, Corvallis Environmental Research Lab, EPA
- April 13 *"Terrestrial Microcosms and Pollution Evaluation"*
 JAMES W. GILLET, Corvallis Environmental Research Lab, EPA
- April 20 *"Toxic Materials in Forest Streams"*
 LOGAN A. NORRIS, Forestry Sciences Lab, USDA, Corvallis, Oregon
- April 27 *"Effect of Heavy Metals on Fish"*
 GARY A. CHAPMAN, Western Fish Toxicology Station, EPA,
 Corvallis, Oregon
- May 4 *"Chemicals and Drinking Water"*
 DONALD GIPE, EPA, Portland, Oregon
- May 11 *"Problems with Petroleum"*
 RICHARD S. CALDWELL, OSU Marine Science Center, Newport, Oregon
- May 18 *"Industrial Effluents as Toxic Discharges"*
 TOM NELSON, Wah Chang, Albany -- Teledyne, Albany, Oregon
- May 25 *"Toxic Pollution and Legislation"*
 NORBERT A. JAWORSKI, Visiting Professor, Dept. of Civil Engineering,
 Oregon State University

The seminars are held every Thursday from 3:30 to 5:00 p.m., in Room 149 Weniger Hall, Oregon State University Campus, Corvallis, Oregon.

On December 16, the President Carter's Natural Resources Environment Reorganization Study released a paper outlining the scope of its ongoing study and seeking public comment. President Carter is expected to consider the various options recommended to him sometime in April.

EROSION CAUSED BY ANIMALS

Methods of keeping livestock and big game animals from causing stream bank erosion and making life miserable for fish are being investigated at Oregon State University.

"Geologic erosion never will be eliminated," said John C. Buckhouse, OSU assistant professor of rangeland resources. "But good land management can help answer the problem of accelerated stream bank erosion caused by humans and large animals. Critical areas must be protected and provisions must be made for multiple use."

Buckhouse, an Agricultural Experiment Station researcher, is trying to find out how much of the erosion process is caused by animals and how much occurs naturally. At the U.S. Forest Service Starkey experimental range near La Grande, different methods of livestock management are being tested to find out which ones will cause the least amount of damage.

Certain areas of the stream bank are selected and sectioned off, some are grazed at different times with different methods and some are not grazed at all. From this, researchers will try to determine the impact of each management system.

"Livestock and big game can cause erosion problems. Water quality can be affected by increased sediment in the water, breakdown of stream banks and contamination of the water from bodily wastes," said Buckhouse. "Also, livestock eating vegetation growing along a stream bank can cause serious problems for the fish because vegetation provides shade needed to keep water cool for trout and other cold water fishes."

Overhanging banks, which livestock and big game animals can break down, provide hiding places and produce riffles and backwater ponds fish need. When the overhangs are broken down, the stream can become less productive.

"Right now we don't have enough scientific background to know how much stream banks are affected by geological erosion and how much is accelerated erosion," said Buckhouse. "No one has measured the amounts."

During the 3-year study, funded by the U.S. Forest Service, Buckhouse said he hopes some questions about stream bank erosion can be answered and recommendations developed that will lead to improved fish habitat while at the same time providing forage for livestock and big game.

WATER RESOURCE POLICY STUDY

Key participants involved in President Carter's water resource policy study have indicated that the new water policy will include the following measures:

- 1) Increase the interest rate used to calculate costs and benefits;
- 2) Impose uniform cost-sharing formulas on construction agencies and increase local, State and private contribution;
- 3) Prevent water pollution, destruction of wildlife areas, and rich farm land; and
- 4) Favor non-structural solutions, or imposing conservation measures instead of building a new reservoir.

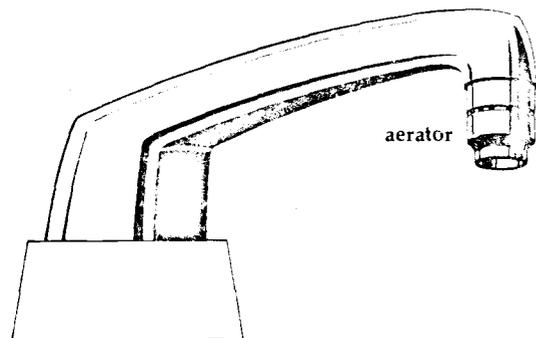
WATER USE IN U.S.

The latest national assessment of surface and ground water use (industrial, agricultural and domestic)--based on data from USGS field offices and other federal, state and local agencies--provides this picture:

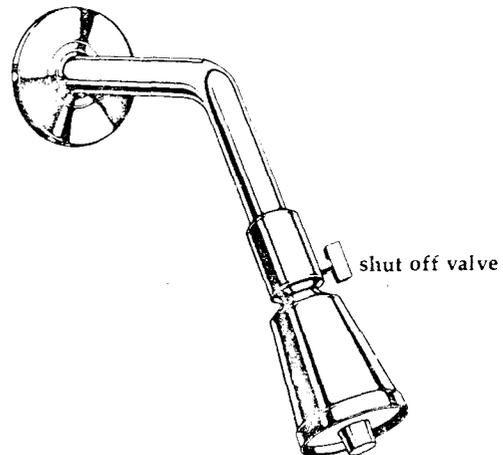
- * The average use of fresh and saline water in the U.S. varies greatly from state to state (160 gallons per capita per day in Rhode Island to 21,000 gpcd in Idaho).
- * About 20 percent of the water withdrawn for off-channel uses (about 83 bgd) was ground water derived from wells and springs. Most of the water withdrawn (about 330 bgd) came from surface-water sources.
- * In the U.S. more water is withdrawn for industrial uses than for any other category of off-channel use. About 81 percent of the water withdrawn by industry was used in the generation of thermoelectric power. More than 80 percent of the industrial water was withdrawn in the eastern U.S.
- * Irrigation ranks second in off-channel water use in the U.S., but it is by far the greatest consumer of water. Evidence: from 1970 to 1975, the amount of farmland irrigated increased about 9 percent, while the use of irrigation water increased 11 percent. The 80 bgd of water consumed by irrigation far exceeds the consumption of all other categories (public supplies, self-supplied industry and other rural uses) combined.
- * Water use for public supplies has increased 8 percent in the last 5 years; about 70 percent going to domestic and public use. Per capita use varies greatly across the country with the smallest withdrawals taking place in Kentucky and New Hampshire. Unusually large industrial use from public supplies helped make the Pacific Northwest one of the highest per capita use regions in this category.

Of the various categories of off-channel water use, the smallest withdrawal was for rural domestic and livestock use.

CONSERVATION TIPS



An aerator on a faucet reduces the tendency for the water to splash and makes a lower flow rate seem larger.



A shutoff valve near the shower head allows the user to turn off the water while lathering without disturbing temperature adjustment of the shower controls.

POLITICAL ORGANIZATION AND WATER

A recent study was conducted by political scientists at OSU to evaluate the activities of several water-related State agencies. These agencies included the State Water Resources Board (SWRB), the Department of Environmental Quality (DEQ), and the Land Conservation and Development Commission (LCDC). Among the conclusions reached were identification of the following local concerns about policies and agencies:

1. Shared responsibilities between state agencies creates opportunities for multiple points of access by locals and inter-agency "watchdogging" in the policy areas of water quality and land use. These advantages do not occur in the area of stream flows. Stated more generally, the advantages of multiple points of access and "watchdogging" occur where responsibilities for related programs are shared at similar stages of the policy process. Where responsibilities are shared for the same program but at different stages of the policy process, the advantages are less likely to occur.

2. Problems of lack of coordination, duplication of effort, local confusion, and "hassles with red tape" occur where state agencies share responsibilities for related programs at the same stages of the policy process. These problems are less likely to occur where responsibilities for the same program are divided between state agencies on the basis of the stage of the policy process in which the agencies are involved.

3. Where different agencies have sole responsibility for the same program -- each agency being responsible at different stages of the program's development -- the problems of inter-agency conflict and rivalry are likely to be a concern of local contacts.

4. State responsibilities in the program area of stream flows should -- in the view of local contacts -- be increased.

5. Local responsibilities in the area of water quality should -- in the view of most local contacts -- be increased.

6. Local responsibilities in the policy area of land use should -- again in the view of local contacts -- be increased.

7. Although there were frequent sentiments for increasing local responsibilities, there were important justifications which did not fit within the concepts of political efficiency and political effectiveness used to conceptualize this study. Increased local responsibility was valued as an end, not necessarily as a means to effectively or efficiently achieving local policy desires. Contacts quite often could not identify policy desires in areas they thought should be largely a local responsibility. But increased local responsibility, or at least "an end to erosion of local government," was valued in and of itself.

8. SWRB and LCDC were evaluated as quite successful in finding out about local needs and interests. There was local concern that DEQ was generally unsuccessful in this phase of policy.

(From *"Political Efficiency and Political Effectiveness in Water-Related Policy Areas"*, by W. Bruce Shepard and D. Jay Doubleday. WRRRI-55, dated November 1977)

COOS BAY NORTH SPIT

The Corps of Engineers and other agencies are conducting a study of the North Spit in Coos Bay. The study results will be used as the basis for land use and management decisions. Public meetings and surveys have revealed the following areas of concern:

1. The need for economic expansion and/or diversification in the Coos Bay area;
2. Whether or not the North Spit is one of the more appropriate sites for industrial expansion;
3. Protection of Snowy Plover (a bird on the Oregon Department of Fish and Wildlife's threatened species list) nesting sites;
4. Protection of Indian burial sites and historic sites on the North Spit;
5. Retention of undeveloped recreation opportunities;
6. Development of recreation facilities;
7. Protection of scenic values; and
8. Geologic stability of the Spit.

The study completion date is set for August, 1978. A task force is working with the planning staff and it includes individuals, organizations, and agencies representing a variety of concerns over land use.

* Invite a qualified speaker to address your group on environmental concerns.

* Leave parks and camping grounds in the condition you would like to find them.

* Use scrap paper. It has two sides, you know.

DRINKING WATER PROBLEM

One of EPA's biggest disappointments with drinking water programs in the Pacific Northwest is the failure of about 500 of the 1000 community drinking water systems in Oregon to make checks of the bacteriological quality of the water they supply to consumers. Under Federal law, it's the responsibility of the operators of public drinking water supplies to collect samples, have the samples analyzed, and report the results to either EPA or a State health agency. This is the only way anyone can be sure that drinking water is meeting established bacteriological standards for purity.

The delinquent water systems in Oregon generally are the smaller systems that furnish water to less than 1000 persons. Even though these systems don't have the budgets of the larger suppliers, the costs of the bacteriological sampling-analysis-reporting procedures are only about \$10 a month. In most cases in Oregon, the State Health Division laboratory in Portland can do analysis free and all it takes to send the results to EPA is a postage stamp.

In the next month or so, EPA will be taking some legal follow-up against the Oregon drinking water systems who have consistently failed to send their one-a-month bacteriological sampling reports to EPA. The enforcement will be on a priority basis, with EPA concentrating on those systems where -- on the basis of available information -- bacteriological problems are suspected.

(From "*Northwest Environment*", February, 1978)

* Put a purple martin house in your yard to control insects.

* Support legislation to protect endangered wildlife species.

NON-POINT SOURCE POLLUTION

"Nonpoint" sources of water pollution--sediment, acid mine drainage, pesticides, and other pollutants carried into streams by runoff from rainstorms--currently produce more than half of the pollutants entering the nation's waterways. The General Accounting Office (GAO) reviewed overall efforts to control nonpoint sources of pollution and concluded that progress has been minimal. If not controlled, nonpoint pollution will prevent attainment of national water quality goals and will continue to grow in significance as "point" sources of pollution such as factories and municipal waste treatment plants are brought under control, according to the GAO Report to the Congress, dated December 20, 1977.

Discharges of nonpoint pollution can occur anywhere along a water body in contrast to sources where the point of discharge is from a pipe or other conduit. Because the source of discharge is diffuse, nonpoint pollution is difficult to collect and treat. The best way to control it is to prevent as much of it as possible from reaching the water through proper management of the land. A terraced field, for example, is less likely to erode than a field tilled up and down the slope.

More attention to the problem is needed for two reasons:

1. First, nonpoint sources can render streams and lakes too polluted for fishing and swimming. Federal and State water quality officials believe that 1983 goals for fishable and swimmable waters cannot be attained in many areas due to this pollution. Iowa and Pennsylvania officials have estimated that billions of dollars are needed to control the most serious types of nonpoint pollution in their States.
2. Second, State and local agencies planning solutions to control nonpoint sources are not using adequate data for planning. These agencies need data which shows the impact on water quality of nonpoint sources of pollution and various control techniques, but cannot collect it due to several program constraints, such as lack of time to gather adequate data and insufficient Federal funding assistance. The constraints are directly attributable to past and current emphasis on controlling point sources of pollution. However, this emphasis has resulted in progress in providing clean water for the future. At the time of GAO's review, the Congress was considering legislation that would permit the Environmental Protection Agency to delay industry and municipal compliance with point source control requirements.

Because total funds for water pollution control are limited, better data is needed to set priorities and evaluate alternatives for controlling water pollution. Constructing another point source control project, for example, may not improve water quality as much as implementing practices to control nonpoint pollution. Better data is needed, also, to prevent implementation of unnecessary water pollution controls and to convince landowners and developers that practices to control nonpoint sources of water pollution are needed, the GAO concludes.

(From *"National Water Quality Goals Cannot Be Attained Without More Attention to Pollution From Diffused 'Nonpoint' Sources"*. Report to the Congress by the Comptroller General, CED-78-6, dated December 20, 1977)