

Another Look at Water Pollution Control

Pollution control in Alaska differs from problems facing the rest of the nation. Basically, Alaska must concentrate on identifying future use and potential conflicts, rather than resolving conflicts that already exist.

Despite some popular opinion, public benefits (including fish and wildlife resources) in Cook Inlet have not been seriously affected by offshore oil operations.

And while the public 'cost' of offshore operations in terms of damaged environment has not been high so far, anti-pollution procedures and safeguards installed by inlet operators has significantly increased the cost of oil operations in Cook Inlet.

These are two conclusions from an economic study of pollution control and water resource management by the University of Alaska's Institute of Social, Economic and Government Research, for the Office of Water Resources, U.S. Department of the Interior.

"... while pollution hazards do exist, there is little concrete evidence to indicate that any beneficial use of the inlet has been reduced or restricted as a consequence of any other such use. Despite the popular concern for the inlet's fish and wildlife resources in the face of petroleum development, these resources and their values, however measured, have not been seriously reduced," write the study's authors, Gregg Erickson and Dr. Arlon Tussing of the Institute staff.

"This may partially be ascribed to the fact that the Inlet has been spared, more through luck than anything else, a blowout disaster of Santa Barbara proportions or a really large tanker spill. (While) . . . there have been a number of serious spills of one sort or another . . . the fact that they have not caused much harm appears to be due in part to the very short periods of the year in which wildlife are vulnerable to such hazards.

"During the past ten years, there is only one incident in which wildlife is known to have been killed as a consequence of oil industry activity. This involved the loss of between 50 and 2,500 ducks as a

consequence of what is presumed to have been a several hundred barrel spill from an unidentified tanker. The only other significant incident involved a moored drilling vessel in Seldovia Bay, which apparently discharged fuel oil into the harbor. The extent of wildlife loss, if any, from this incident is unknown."

The authors go on:

Control benefits operators

"While the presence of petroleum operations in the inlet has not imposed significant costs on other users of the resource (the inlet), the existence of those other users (i.e., sportsmen, fishermen) has significantly increased the costs of operations to offshore oil drillers. The exact magnitude of these costs are difficult to estimate because many of the pollution control expenditures produce ancillary benefits to the operator in terms of safety and operational efficiency. For instance, of several operators contacted, all said that the installation of wellhead and downhole pressure control devices would have been required even if pollution hazard control had not been a design consideration.

"Other facilities, such as skim tanks, are primarily for pollution control, but also increase the quantity of crude oil recovered, thus partially paying for themselves. Total capital costs of these items is probably in the neighborhood of \$100,000 per platform. Pollution control activities (primarily garbage haul-away) probably increase the annual variable costs of operating each platform by about \$10,000 per year.

"(A) . . . basic distinction between the practice of water quality management in Cook Inlet compared with elsewhere in the U.S., is the need in Alaska to concentrate on identifying resource (i.e., the inlet) utilization conflicts which can be expected to develop in the future rather than emphasizing the resolution of existing conflicts. Such an approach is dictated by the fact that most existing and proposed pollution control measures for this region are designed to prevent the development of conflicting uses. In such a context, the questions that must be answered deal with the probability that a conflict will develop, the actual cost of such a conflict should it develop, and the costs

of its prevention. It may very well be that prevention is more costly than cure, or even that both are unnecessary."

Purely in terms of economic use, "identifying future resource utilization conflicts will require an information base adequate to estimate the economic and demographic directions of the region.

"It is logical that this information should be in hand prior to intensive work being undertaken toward evaluating the physical and biological aspects of possible conflicts. This does not mean that physical and biological characteristics of the water should be ignored, but rather that investigations should not specialize on the relationships between particular parameters until economic information indicates that human activity is either going to affect these parameters or be affected by them.

"No objective criteria can (now) be laid down to guide the decision maker in choosing the information relevant or important to his tasks. Much, of course, will depend on how he defines those tasks and the priorities given them.

"Nevertheless, the following observations and policy suggestions may be useful to understanding and, where appropriate, making use of economic ways of examining problems of water resource management in Alaska.

Put problems on computer

"From the point of view of resource allocation, the "services" provided by a body of water should be distinguished one from another in two functional ways: Firstly, the provision of each service requires the water to possess specific physical and biological characteristics. Secondly, services can be classed according to the manner and degree to which its provision modifies the nature of water. These requirements can be thought of as (information) inputs and the modifications as (information) outputs, of a service providing process.

"In the more developed areas, it has been found extremely useful to simulate these inputs and outputs in a model of the water body under study. (Editors - what the authors are suggesting is a mathematical model constructed in a computer, a very common procedure in use among scientists and economists today.)

"Such a model may be a very complex mathematical structure, but the idea behind it is very simple: Rather than trying to "figure out" what would happen "if", it is more productive to introduce the event in question into an artificial system, and simply observe the results.

"It is possible to extract a great deal of useful information at a very small cost from such a "model", even when the physical relationships are poorly understood.

"These techniques should be applied to the present problems of pollution management in Alaska. A particular benefit of

such studies is that they will give natural scientists valuable assistance in determining priorities among various possible directions in applied research.

Pollution-control board?

"Unfortunately, it is clear that existing governmental institutions are not structured to seek out the information on benefits and costs necessary to properly allocate the services and values available from Alaska's water resource. Where this kind of information is at hand, the public has a right to expect a level of efficiency in its use by the government that is not obtainable under existing regimen."

Decisions on Alaska water management, "could be set by an administrative agency in the executive branch of the government, but a better arrangement would be to establish a Water Resources Evaluation Board somewhat along the lines of the present Board of Fish and Game. An alternate would be to model the board after the Alaska Oil and Gas Conservation Committee.

"Such a board could be appointed by the Governor in staggered terms, and be composed of people with varied professional backgrounds, representing diverse interests. A five-member board might consist of a biologist, an engineer, an economist, a businessman, and a recognized "conservationist". Specifying the qualifications of the latter two is not as insurmountable a problem as it might appear. For instance, the conservationist might be chosen from a list of such people nominated by the Alaska Conservation Society."

Anyone wishing to conduct activities that would alter certain well defined characteristics of the public waters would be required by law to submit an application to the State Department of Natural Resources. The Department would prepare a water utilization impact study in which it would attempt to identify all possible adverse effects of the proposed use. This study would be circulated to all interested parties, and after public notice and the passage of a reasonable "digestion" period, a hearing would be called before the board.

"After the hearing, the Board would sit in executive session and determine, on the basis of the application, the utilization impact study, and the hearing record, (any) appropriate fee to charge for the proposed use, which could be any sum not less than one dollar per year.

"The criteria to be used in setting . . . fees would be laid down by the legislature. The fees could be charged on whatever measure of utilization the board might deem appropriate. They would remain in force for one year and would continue thereafter until reviewed. Review could be initiated by public request, by the applicant's request, by submission of a revised impact study from the Department of Natural Resources, or the Board's own motion.

"This particular structure can undoubtedly be improved on, even from a strictly economic viewpoint. However, this scheme has one virtue which should somehow be retained in any plan to improve the management and control of pollution: The required water utilization impact study guarantees that at least some formal effort will be devoted to evaluating the cost and benefits of a proposed change in the pattern of utilization. Unless provision is made for such an evaluation, the public can hold very little hope for improvements in the manner in which its water resources are managed." □

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