

EDITORIAL

The availability of adequate supplies of fresh water is potentially one of the world's most serious long-range environmental problems. For example, in North America water shortages in the west and southwest where water is scarce but where populations are growing has been well publicized. The increasing worldwide demand for irrigation water to support agriculture and the possibility that vast quantities of water will be needed to develop energy sources have also attracted much attention. Even the possibility that water supplies may be reduced by anthropogenically caused climatic warming (the greenhouse effect) has caused concern.

The large lakes of the world contain a significant portion of the water that will inevitably be needed to meet the varied demands. For example, the Laurentian Great Lakes contain 20% of the world's fresh surface water and about 95% of the U.S.'s surface water. All this water is already being put to many uses, such as for drinking water, industrial processes, irrigation, hydropower, transportation, recreation, and as a habitat for wildlife. Use of water from the world's large lakes also affects fishing interests and riparian landowners, and the lakes have long served as receptacles for society's wastes. Nevertheless, if water becomes sufficiently scarce, diverting water from the Great Lakes will inevitably be a real issue, and the lake's many uses will be threatened.

In addition to the prospect of diverting water out of the Great Lakes basin, there are a number of other critical issues facing managers of Great Lakes water resources. Significantly increased consumptive use of water in the basin may be a major management problem. Sound management strategies for integrating lake-level regulations, extra-basin transfers, and intra-basin consumptive uses need to be worked out now even though uncertainty in available data and conflicting uses of the water will make this difficult. The regulation of lake levels for hydropower, navigation, environmental improvements, flooding, riparian interests, fishing, recreation, and consumptive uses is a complex issue since various purposes often conflict. Many alternatives will have to be developed which will have to be acceptable on political and social as well as technical grounds. While I have emphasized water quantity aspects, water quality is intimately linked to water quantity issues in the Great Lakes and is undoubtedly a key for other large lakes. Despite large volumes, water must be of high quality if it is to fulfill a wide range of needs.

Basic and applied research is necessary to provide the rationale for the difficult water quantity management decisions that must be made in the future. IAGLR facilitates this research by providing the only major forum in which researchers from all disciplines working on large lake research can interact (through the annual research conferences and the Journal of Great Lakes Research). These interactions will be even more important in the future as the decision-making process becomes more holistic. In other words, the so-called ecosystem management approach will be necessary to solve the water quantity problems of the future, and I believe our Association has a key role to play in making such an approach successful.

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