

EASTERN CANADA FACES WATER SHORTAGES  
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previously. The first - the large volume of storage required to provide improvement, and the second - the time required for any improvement in the upper lakes to reach Montreal harbour.

DIVERSION FROM NORTHERN SOURCES

Obviously, the present problem is lack of water and the solution is to obtain additional water that is not at present being used. This suggests diversion into the lakes. One of the sources that has been suggested is water that now flows into James Bay. Since this resource is in either Ontario or Quebec, it falls under the jurisdiction of these provinces. Such diversion might be made into the Ottawa River or into one of the Great Lakes. If the water were diverted, certain problems would be encountered. Certainly, it would improve low water levels, but it could increase the risk of flooding unless the diversion could be shut off when high water was anticipated. This would require, in the case of a diversion into Lake Michigan-Huron, a forecast two to three years ahead because of the time relationships I spoke of earlier.

Speaking personally, I am one of those who look optimistically upon the imaginative possibility of diversions from the rivers flowing north back into the Great Lakes and Ottawa River systems. I have been told that such diversions are now possible in terms of engineering. The cost would be phenomenal, but anything becomes economically feasible if there are those willing and able to pay for it. The consumptive demands of the Canadian provinces and American states around the Great Lakes may soon reach such intensity that the financing of such a diversion would be practicable. Two strong words of caution should, however, be said - namely, the difficulty of predicting precipitation on the Great Lakes, and the time-lag of two to three years in run-off throughout the system. A danger might exist of diverting water into the Great Lakes followed in a subsequent year by heavy precipitation, both of which together might cause flood conditions that it would then be too late to control. We have not discounted the possibility or indeed the necessity for using computer controls in the regulation of the Great Lakes. However, even with such controls there would have to be considerable foreknowledge of the hydrometeorological conditions which could be expected many months in advance, so that diversions could be made without subsequent damage to the balance of the Great Lakes system. I wonder whether our weather forecasts are yet accurate enough to be fed into such a computer-control system.

OTHER POSSIBLE SOLUTIONS

A second possible solution to low water levels might be the release of storage on Lake Superior. Lake Superior levels are near normal, and satisfactory rainfall in recent weeks has further improved conditions. It would be logical to release any additional water available to downstream users. This certainly has merit as a long-term assist but, again, the time

relationships in the storages of the Great Lakes prevent a large portion of this benefit from reaching the lower lakes and Montreal harbour for well over one year. Some additional water has already been released this year and this possibility is being further explored by the International Joint Commission and its Lake Superior Control Board.

A third possible solution is regulation of all the lakes. As I said before, only two of the four Great Lakes are now being regulated and it seems to me that before we consider adding water to the system we should study what can be done with the natural supplies through co-ordinated regulation of the four lakes. This is what the Federal Government is proposing. This would enable larger amounts of storage to be set aside at the beginning of dry periods to maintain flows through these periods. Many technical problems are raised which will require intensive study. One of the most difficult would be the development of improved, long-term weather forecasts. Economics would have to be considered because of the very high costs of the works required.

SUMMATION

To sum up my remarks, the problems of low water on the Great Lakes are intensely complicated. Two of the more complicated relationships affecting these are the volume of storage and the time required to make significant changes in this storage. Three possible solutions suggest themselves from my remarks. These are diversion, release of storage from Lake Superior, and more complete regulation of all the lakes. Diversion to the Great Lakes could make conditions of high water worse. Release of storage in Lake Superior is not a solution which will provide immediate relief to Montreal harbour or Lake St. Louis, but would assist lake levels in Michigan-Huron. Regulations of all the lakes is perhaps the best initial approach, and we should direct our efforts so as to determine how the water which is now available to the Great Lakes basin can be used more effectively by regulation of the remaining lakes, bringing the whole system under integrated control... \* \* \* \*

STRATFORD CHAMBER WORKSHOP

On June 29, musicians from Vancouver to Halifax met in Stratford, Ontario, to form the National Festival Orchestra and to begin their activities in the Chamber Music Workshop.

This season, six guest instructors and three Canadian pianists have been engaged for the Workshop sessions, which opened on July 1 and will end on August 15 at the Stratford Festival. An important feature of the Workshop season is the participation of three outstanding pianists, together with one of the resident quartets, in the study of one of the major piano quintets. There will be six Saturday morning concerts, with the pianists Sheila Henig, Patricia Parr and Paul Helmer as guest artists and Leon Fleisher, David Mankowitz, Charles Rosen, Robert Koff, Sol Schoenbach and Rudolf Firkušny as visiting instructors.

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