

REPORT ON GAYSVILLE
RESERVOIR - VERMONT
AUG. 26, 1963

CPO Bulletin # RP10
(Proposals for Development of)

GOVERNOR'S PLANNING COUNCIL
Central Planning Office
CPO Bulletin #RP10

August 26, 1963

REPORT ON GAYSVILLE RESERVOIR
VERMONT

The attached report was prepared by the Water Resources Review Panel to provide background data on proposals for the development of the Gaysville Reservoir.

The Water Resources Panel is one of several similar panels currently reviewing various elements of Vermont's natural resources.

Members of the panel participating in this report are:

Carl Gordon, Chairman, Lyndonville	Sidney Smith, Ludlow
Senator Aline Ward, Moretown	Frederick Mehlman, Montpelier
Representative Arthur Williams, Fayston	Donald Webster, Montpelier
Representative Robert Graf, Rupert	William Albert, Montpelier
Merritt Thomas, Rutland	William Countryman, Northfield
Andrew Tessman, Burlington	

WATER RESOURCES REVIEW PANEL

GAYSVILLE RESERVOIR

General

Prior to 1927, power interests had developed a dam at the approximate location of the proposed Gaysville Flood Control Dam. This dam and power plant was lost during the flood of 1927 and considerable damage was wrought in the immediate area. Power interests never redeveloped a dam at the site.

As a result of the flood of 1927, the federal government studied the White River for sites that might be suitable for flood control structures that would serve as a part of a comprehensive flood control system for the Connecticut River. This site was examined for the single purpose type of project for flood control only, and for the dual purposes of flood control and power storage.

The Flood Control Act of 1941 authorized construction of the Gaysville Dam and Reservoir on the main stream of the White River for flood control and conservation storage. However, the Federal Flood Control Law, as amended in 1944, provided that in all new projects, state or states affected should have an opportunity to work with the Corps of Engineers during the planning stage and, if the state objected to the final plan proposed by the engineers, that objection should be included in the report submitted to Congress. Under this Act, the Gaysville project previously authorized was to be treated as a new project and was not in line for development unless re-authorized by Congress. Thus, in principle, state concurrence must be given for the Corps of Engineers to build this project.

The dam site is located on the White River at Gaysville, in the Town of Stockbridge, at a point 31.6 miles above its point of juncture with the Connecticut River. It has a drainage area of 226 square miles and is situated in an area that might be described as mountainous. The flood control structure, as originally authorized by Congress, would have been a variable radius concrete structure, if foundation conditions would allow, rising to a height of 197 feet above the stream bed which has an elevation of 630 feet msl at this point.

Flood Control

The Gaysville Reservoir must be considered to be a vital link in the comprehensive flood control plans for the Connecticut River. Therefore, the question is "when will it be built?", not "if it is built" and, secondly, "what type of structure would provide a maximum of benefit to the state of Vermont, while providing flood control benefits needed for the downriver states?", and not "do we want a structure at this site?".

Other Potential

The White River Valley is at present a lightly developed basin with a diminishing agricultural economy. A substantial pond with reasonably stable water level is presently desired by many residents in the basin area. The water presently flowing in the White River in the vicinity of Gaysville is clear, sparkling water of light pollutional load, with present water quality approaching that of bathing waters. Modest effort upstream would produce water suitable for all recreational uses.

Development of this site for hydroelectric energy, either at the dam or downstream purposes, would result in substantial drawdowns and potentially widely varying water levels, that could be detrimental to sound recreational development. It is possible, however, that discharges outside of the usual recreation periods might be programed for the benefit of downstream users and still provide improved environment and habitat for fish and wildlife. Modest storage at the site for discharge during normal low flow periods would be most beneficial to the downstream areas. It could immeasurably improve some 31 miles of the White River, possibly to the point of making it a major trout fisheries area of regional importance. It would also provide improved dilution ratios for conveyance of adequately treated wastes from downstream communities.

Considerations

The White River Valley above Gaysville is quite narrow at certain points and the hillsides are quite steep, which could cause some difficulties in developing

good recreational uses unless careful planning is undertaken. It is believed that there are several opportunities for creating substantial sub-impoundments in the area that should be studied to determine whether they could further add to the recreation potential and usefulness of the site. Discharges from the permanent pond of 500-1000 acres for power purposes would require substantial drawdown and would result in an unstable water level behind the dam and the exposure of cleared land from the maximum pond elevation to that of the actual water surface. Power development at the site is considered to be insignificant since it is estimated that the proposed power plant at Gaysville would produce 33,000,000 KWH at a capacity factor of 36%. This represents less than three months growth in use of electricity in Vermont based on the recorded values for 1962 when compared with 1961. Such use would be characterized by relatively large stream flows downstream, with intermittent periods of little or no flow in the downstream watercourse.

Recommendations

Good usable water surfaces are not generally available in this section of the state and, therefore, all possible recreation values should be thoroughly investigated and evaluated. It would appear that in the long period that hydro-power from this project would be of minor consequence as compared to the short and long-term recreation values in the basin and, therefore, storage withdrawals for hydro-generation purposes should be considered only if it is completely compatible with other desired developments, and then only on a programmed out-of-season type of withdrawal.

These recommendations are predicated upon the assumption that if hydro-generation is not a project purpose, that downstream flows may be augmented to provide a minimum flow of at least 50 c.f.s. Adequate stream flow supplementation through regulated discharge during low flow periods should be considered as an essential part of the structure. Peripheral land use should be given careful consideration and appropriate efforts made to protect the recreation values that should be built

into the project. This might include consideration of suitable land acquisition, zoning, highway relocation, to produce a maximum of desired utilization and other similar factors. State agencies should be directed by the Governor to proceed immediately with coordinated planning for this project with the above points as minimum criteria so that a unified state plan can be discussed with the Corps of Engineers.

GOVERNOR'S PLANNING COUNCIL
Central Planning Office
CPO Bulletin # RP 13

September 4, 1963

REPORT BY WATER RESOURCES REVIEW PANEL ON
COMPREHENSIVE PLANNING AND DEVELOPMENT OF THE CONNECTICUT RIVER

The report was designed to supply the Planning Council with background information and recommendations sufficient to support a policy position pending the development of more complete information from studies now underway.

The Water Resources Review Panel is one of several similar panels currently reviewing the various elements of Vermont's natural resources.

Members of the panel participating in this report are:

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Merritt Thomas, Chester

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WATER RESOURCES REVIEW PANEL

COMPREHENSIVE PLANNING AND DEVELOPMENT OF THE CONNECTICUT RIVER

Authorization

A resolution requested by Senator Bush of Connecticut was passed by the Senate Committee on Public Works on May 11, 1962. This resolution called for the comprehensive investigation of the Connecticut River Basin. This resolution differs from earlier resolutions which authorized review of prior reports by reason of the following wording, "with particular reference to developing a comprehensive plan of improvement for the basin in the interest of flood control, navigation, hydro-electric power development, water supply, and other purposes, coordinated with related land uses." This is undoubtedly the broadest language yet used in authorizations for water resource investigations.

Stated Scope of Study

The Corps of Engineers have stated "the study will encompass an analysis of needs, basinwide and for major subdivisions, for Stream flow regulation, water supply, water quality, control, flood control and drainage, watershed treatment, navigation, hydro-electric power, recreation, fish and wildlife conservation and other purposes.

It is contemplated that in addition to the State agencies of the basin that there will be eight (8) Federal departments involving nineteen (19) agencies participating in the study."

Stated Method of Approach

The Corp has stated that in order to insure a truly comprehensive investigation and ultimate development of a comprehensive plan that they plan to enlist the aid of other agencies, Federal, State and private, to assist in the undertaking. It is anticipated that more than \$2,000,000 will be made available for the study. These funds appropriated can be used by the Corps to reimburse Federal agencies for services requested and for the usual contractual services. No money can be used to reimburse states for assistance.

The original prediction was that this study would extend over a four (4) year period and there are some who now feel that it will take a longer period.

A Coordinating or Advisory Committee will be established to periodically review the progress of the study, to comment and advise the working groups as to trends of the investigation, to maintain awareness of the considerations included in the investigation, and to provide a liaison with the State and departmental leaders and the public. The panel stresses the need for a Vermont representative on the Committee who would be given authority and responsibility to speak for the Governor on matters pertaining to Vermont.

Recommendations

The full development of the water and related land resources of the Connecticut River Basin is essential to the future economy of the region. There can be no doubt that there will be considerable value in the study and that it will determine the pattern of development for the future. Therefore, the State must cooperate and participate in the study to the fullest extent possible, if our interests are to be truly reflected. The study is to extend over several biennial periods, so the state representative to serve on the study should be selected with the thought in mind that he should be able to serve for the full period of the study.

There should be a state committee formed of key individuals from each state agency by the Governor. This committee should meet with the Governor's state representative regularly to furnish information and advice to the state representative.

It is also recommended that the states of New Hampshire and Vermont establish a classification for all the waters of the Connecticut River in the Basin in the very near future through the existing New England Interstate Water Pollution Control Compact. This classification should then be passed on to the Connecticut River study group.

Successful state participation in this comprehensive study will require modest additional funds. The state program for participation must be developed now and early funding is most essential.

GOVERNOR'S PLANNING COUNCIL
Central Planning Office
CPO Bulletin #RP 14

September 4, 1963

A REPORT BY WATER RESOURCES REVIEW PANEL ON
REGULATION OF STREAM FLOWS OF STATE WATERS

The report was designed to supply the Planning Council with background information and recommendations sufficient to support a policy position pending the development of more complete information from studies now underway.

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WATER RESOURCES REVIEW PANEL

REGULATION OF STREAM FLOWS OF STATE WATERS

General

There are numerous dams in Vermont that have been built across our streams or at the outlets of lakes or ponds for the purpose of holding back water so that it might be passed through turbines to produce electric energy. This storage of water is referred to as pondage - short term holdback and as storage - long term holdback. As a direct result of this ability to hold back water for use at a future time, the downstream watercourse may be deprived of normal stream flow. This condition may persist for a few hours or a few days as a result of pondage or for longer periods as a result of storage.

At some of these developments a second problem of altered stream flow may occur when the hydro station is located at some distance from the dam. In such instances, the water is withdrawn from the pondage or storage area through penstocks or canals and thereby conveyed to the turbines. In such instances the original stream channel can be dewatered and the natural ecological environment completely changed. In some instances, valuable fishery spawning grounds can be destroyed, dilution waters for pollution abatement denied, and recreation potential reduced.

Problem

The Federal Power Commission has held proceedings to consider issuing licenses to the owners of these hydro-electric installations and has sought information concerning state and local interests in these matters. The term of these licenses is fifty (50) years and conditions of use based on substantiated evidence are assigned.

The Federal Power Commission has announced that it is stepping up its activities in licensing plants in New England and that all public utility operations on or affecting navigable waters will be licensed in the immediate future.

Recommendations

The time has come for Vermont to give full consideration to the value of its water resources. Giving this consideration, the relative values now and for the future derived from maintained stream flows and the ability of fish to migrate in our watercourses must be considered.

Careful consideration should be given to the establishment of some established standard for minimum maintained stream flows. State computed analysis of hydrologic stream flow data would suggest that for Vermont streams that 0.20 cubic feet per second of flow can be expected for each square mile of the drainage area 95% of the time.

This topic is vital to any state water resources plan and program because all projects involving pollution control, recreation, industrial water useage, fisheries, agricultural uses of water must have a datum plane of minimum natural flows upon which to formulate design criteria, project benefits, and establish programs.

It is recommended that appropriated legislation be drafted and introduced into the Legislature. Such legislation should establish low flow requirements and have provisions for hearings together with the usual safeguards.

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