Day of Reckoning for the Garrison Project

New commission to have last word on troubled North Dakota irrigation plan that is widely viewed as a pork barrel classic

JAMESTOWN, N.D.—This year could mark a turning point for the Garrison Diversion Unit, a vast, problem-ridden irrigation project in North Dakota that environmentalists have been trying to kill for the past dozen years.

The Interior Department, at the behest of Congress, has appointed a 12-member commission headed by former Louisiana governor David C. Treen to decide the fate of the project, including a possible alternative plan, by 31 December. Work is to stop at the end of this fiscal year, 1 October, and a fiscal 1985 appropriation of $53.6 million will be held up until January. But unless two-thirds of the commission agree to halt or modify the project, it will proceed as planned.

The Audubon Society, which has taken the lead in battling Garrison, negotiated the new arrangement with Senator Mark Andrews (R–N.D.) in the face of a very tight appropriations vote in the Senate. The estimated costs of the project have grown from $207 million in 1965 to $1.2 billion. But it has been kept alive through the determined efforts of North Dakota politicians, including Andrews and Senator Quentin Burdick (D–N.D.), who are both powerfully situated on the Senate Appropriations Committee.

The commission, composed mostly of western Republicans, including several scientists and environmentalists, has a tremendous task before it. The Garrison project has roots extending back into the Depression and involves major questions relating to Western water allocation, the economics of reclamation and irrigation, wildlife and land conservation, and international environmental responsibilities.

North Dakota has long wanted to find a way to harness the abundant flows of the Missouri River. Following the dust-bowl days of the 1930's the Army Corps of Engineers and the Interior Department's Bureau of Reclamation put together a water scheme, known as the Pick-Sloan plan, which became the Flood Control Act passed by Congress in 1944.

The Corps' role was to build six dams on the Missouri, providing flood control and navigation in a ten-state area. One of these was the Garrison Dam in North Dakota, which was completed in 1953 and entailed the flooding of a half-million acres of land. The Bureau of Reclamation was then to divert some of this water for the state's use.

The original idea was to supply water for a million acres in the dry western part of the state. But soils there were found to be too dense for irrigation, so new target lands were designated in the central and eastern regions. Finally, in 1965, Congress authorized a scaled-down plan to irrigate 250,000 acres.

The project is a system of canals and reservoirs extending through a 25-county area, fed by Missouri water pumped from Lake Sakakawea created by the Garrison dam. Ironically, the project now reaches through some of the wettest land in North Dakota—its prairie pothole country, a system of sloughs and marshes created 10,000 years ago by glaciers, that supply nesting and migration habitat for several hundred thousand waterfowl a year.

The bulk of the network is in the Hudson Bay watershed, whose boundary cuts diagonally across the state. This means that much irrigation runoff could eventually make its way to Canada.

Construction on the first major project feature, the 74-mile long McClusky Canal, began in 1970. It did not take long for the troubles to start. Farmers outraged by having their farms torn up for the canal started suing in 1972. The Council on Environmental Quality recommended suspension of the project in 1973. The Audubon Society in 1976 sued over the environmental impact statement (the first one, in 1974, was 11 pages long), and obtained a court order which halted construction for 5 years. The project made President Carter's water project "hit list," and it lost House support several years ago.

Meanwhile, during the 1970's the Canadian government was getting increasingly concerned at the prospect of pollution from irrigation as well as the possible transfer of undesirable aquatic species between two drainage basins that had been separate for 10,000 years. They feared that fish organisms, particularly rainbow smelt, would make their way through the McClusky Canal to the Lonetree Reservoir, a 25-mile long reservoir that is to be the heart of the project, and from thence into rivers flowing into Lakes Winnipeg and Manitoba. Remembering the lamprey, which got to the Great Lakes from the Erie Canal, they feared decimation of the lakes' commercial and sport fisheries.

The International Joint Commission, whose purpose is to monitor the U.S.-Canadian Boundary Waters Treaty of 1909, did a detailed 2-year study of the situation. It concluded in 1977 that anything less than 100 percent protection from interbasin transfer of biota would violate the treaty.

Things looked pretty grim for Garrison until the advent of the Reagan Administration and its secretary of Interior James Watt. Watt, far more enthusiastic about the project than his predecessor, Cecil Andrus (who had labelled it a "dog"), got things started again in 1981 by issuing assurances that the project would be limited to "Phase I," at least until all the problems were resolved, and that the Canadian watershed would remain inviolate.

It will take 8 to 10 years to complete Phase I. This phase is designed to irrigate only 85,000 acres, but it contains most of the basic features for the full project, except for a canal stretching northward to Canada's Souris River, which loops down into North Dakota. The Souris loop contains 103,000 acres of would-be irrigated land.

The Phase I designation has certain advantages for the project. Officials at the Garrison Diversion Conservancy District can defend its high costs (taken as a discrete entity, Phase I's per acre irrigation costs would exceed $8000) by maintaining it is the infrastructure for the larger project. Sensitive environmental and political questions about the entire project, however, can be deflected on the grounds that they are "premature."

Justification for the Garrison idea is usually expressed in sweeping statements about the state's development future and North Dakota's right to compensation for its "sacrifice" of prime farmland for the Garrison Dam. (Actually, 40 percent of the area was Indian reservation.)

Planners say irrigation is required to stabilize the economy—water would flow through the state "like blood flows

through a living body'' says a Bureau of Reclamation report—and that the project (with benefits to recreation and wildlife counted in) would boost the state's productivity by $200 million a year. The official benefit-cost ratio is 2.47:1; environmentalists say it is closer to 0.45:1.

North Dakota's chief crops are wheat, followed by corn and sunflowers. Irrigation would allow for expanded production of corn, as well as of alfalfa for feedlots and other, more high-priced commodities, say Garrison supporters. It will open the way for new processing plants, such as for corn oil.

Critics have pointed out that the government extensively subsidizes North Dakota farmers for not growing crops under the Payment in Kind (PIK) program. But this is dismissed by Garrison's attorney Murray Sagsveen as a ''spurious argument'' because PIK only applies to wheat and corn. Besides, he says, PIK is looking to the long-term future.

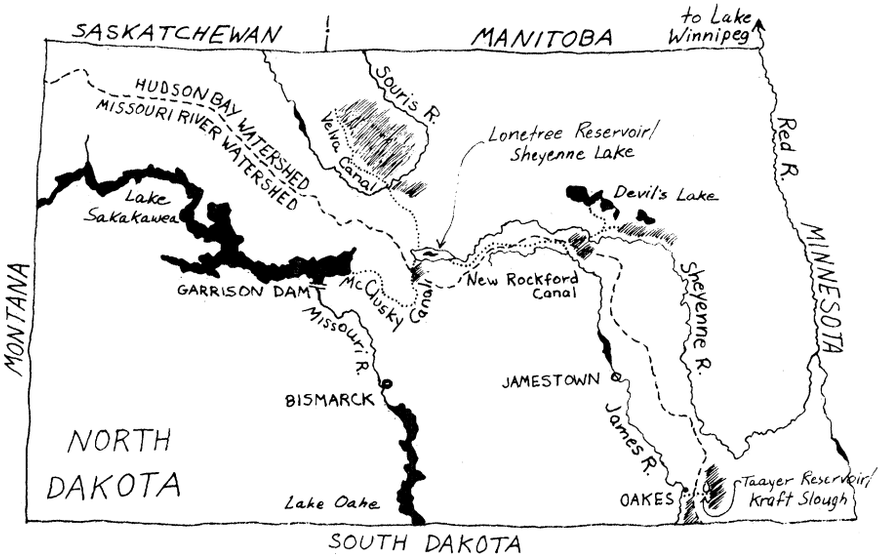
Further justification offered by project supporters is that North Dakota aquifers do not have very good water, and many towns are interested in getting a supply from the Missouri. But there is no official assessment of how the project matches up to North Dakota's water needs.

The high costs of the program are not a legitimate issue, the planners argue. Ninety percent of the project will pay for itself because users of power from the Garrison Dam—most of them out of state—will pick up 87 percent of the tab, and irrigators will pay 3 percent.

Critics of the Garrison project reject all these arguments. First of all, they claim that few farmers even want the project. (Spokesmen at the Conservancy District claim about 90 percent favor it, but acknowledge they haven't been doing any polling.)

In fact, many farmers have turned against the program. In a recent lawsuit, farmers in the Jamestown area tried to halt work because they anticipated flooding and pollution from irrigation runoff in the James River. Others are worried that leakage from the canals will pull salt up from the soils and damage adjacent crops. Still others have been riled by government purchases of wetlands for wildlife mitigation.

Nor are the benefits of irrigation evident to many farmers. Members of the Committee to Save North Dakota, made up mostly of small farmers, say would-be irrigators are put off by the costs: about $60,000 for a pump and center pivot to irrigate 160 acres—plus $25 or $30 per acre per year for operations and maintenance. Additional chemicals are also required.



Diversion plan: Irrigation areas for 250,000-acre plan are shaded. McClusky Canal is complete; Lonetree Reservoir, New Rockford Canal, and Oakes pumping plant under construction.

Corn, asserts Odean Ebel, head of the farmers' committee, is more expensive to produce with irrigation than as a dryland crop, at current prices. As for alfalfa, Ebel and others see little likelihood that farmers would shift to this feed crop. They say feedlot owners have been going bankrupt with some regularity lately, both because of low beef prices and the fact that cattle raising is not very profitable in a climate with North Dakota's long and bitter winters.

One environmentalist polled over 100 farmers in the Souris loop to the North, and only found one who wanted to irrigate. The climate is best suited to wheat, which is not irrigated.

Ebel estimates that in the state, which is 90 percent farmland, ''5 percent are strongly opposed, 5 percent strongly for, and the rest don't give a damn.'' Those who favor the project, he continues, are ''those who stand to gain financially, those who stand to gain politically, and those being paid to promote it.''

There is one area, the Oakes area at the south end of the planned system, where there is considerable support for the project. However, a look at the region, dotted with prairie potholes and a number of crops already under irrigation (from wells) lends some credence to the assertion of one biologist that what the farmers really want is free drainage so they can expand their cropland.

Critics are also skeptical that the Garrison project is required to meet municipal water needs. One town, Minot, has signed a contract for water, and it subsequently discovered its own aquifer. Other towns do need water, but most are in the west, outside the conservancy district. Furthermore, municipalities require only a tiny fraction of the water required to irrigate, and their needs could be served by pipelines alone.

Even assuming a favorable economic picture, nagging environmental problems remain. One is the famous fish screen, demanded by Canada to prevent interbasin transfer of biota. Much arduous engineering has gone into the design of a $42-million screen for the McClusky Canal to prevent organisms from getting into the Lonetree Reservoir. When *Science* asked the men at the conservancy district how recent tests had gone, they said the screen worked wonderfully and that buildup of algae against it was prevented by a backwash system.

Other sources, however, indicated that the screen is still a ''terrific problem.'' The screen, with 4900 holes per square inch, is fine enough to eliminate fish eggs, but experiments with a small test screen resulted in a buildup of algae and debris that radically reduced the flow. The big screen is actually 168 large tilted panels that would cover a large area where water rushes down from the canal into the reservoir. This end of the canal is in the Hudson Bay Basin, so if the screen failed, it would be too late to effect an emergency downstream cutoff.

A screen at best could never be 100 percent effective, nor would it prevent the passage of fish disease organisms. So the Bureau of Reclamation is looking into various means of creating a ''second line of defense.'' At a 5000-acre test area in Oakes, investigators from state and federal agencies are looking at ways to prevent noxious organisms and chemicals from getting into Canadian waters. These include underground drainage pipes and recirculation of wastewater.

The spokesmen at the Conservancy District regard all the "so-called problems" of the project as actually one problem: environmentalists. "If God was going to create the world today he'd never get it through" (the environmental impact process) sighed one.

The chief concern of environmentalists is the project's impact on wetlands. North Dakota, according to the Audubon Society, has "the last best prairie wetland habitat on the face of the Earth." Originally totaling 5 million acres, more than 2 million remain despite widespread drainage for cropland. Over the millenia, each marsh has developed its own ecology, arising from soil differences and water ranging from pure to saline. Some are permanent, others dry up seasonally.

Thus, even the most dedicated efforts at "acre for acre" replacement of wetlands—as desired by environmentalists and, originally, by the Fish and Wildlife Service—could not result in full replacement of the lost habitat.

Phase I entails the destruction of 19,000 acres of wetlands, including the Cheyenne Wildlife Refuge, as well as damage to 6 other refuges. The plan for mitigation of the impact does not attempt to replace all these losses. Instead, it employs a technique developed a few years ago by the Fish and Wildlife Service called Habitat Evaluation Procedure. This involves the development of a numerical rating, expressed in Habitat Units, of an environment as it relates to the needs of a particular species. The rating is arrived at by multiplying a figure representing the quality of a habitat by its acreage. Species with the same needs are lumped in the same "guild" for the purposes of evaluation. Thus the muskrat is linked up with the canvasback and redheaded ducks. If the habitat is suitable, it is assumed that other elements, such as food supply and predators, will fall in line.

The values of the plan are ultimately expressed numbers of animals accommodated, rather than duplication of habitat. Thus, the 19,000-acre loss is to be matched by a gain of 4000 acres (created by reflooding drained wetlands), supplemented by the purchase of 7000 acres of existing wetlands (plus surrounding grasslands). The Bureau of Reclamation confidently predicts that intensified management—such as the construction of fencing and nesting cover in surrounding uplands—will result in enhancement of the waterfowl population.

There have been some liberties taken with the procedure—reportedly despite protests from Fish and Wildlife Service biologists. When it was found, for example, that there wasn't going to be enough muskrat habitat, the overall numbers were straightened out by tacking on some excess habitat units for gadwall ducks (for "out-of-kind" mitigation).

The plan has drawn some sharp criticism. The North Dakota chapter of the Wildlife Society, a professional group, damned the mitigation plan as one that might be expected from "a crash program, dominated by people without professional wildlife management expertise, to develop a . . . plan to meet political objectives."

The Minnesota Department of Natural Resources has also criticized it, saying

White-faced glossy ibis. Its only North Dakota nesting place is in jeopardy.

that the models used are "inadequate and misleading," that wetland losses are written off while grassland values are inflated, and that the "models have not been verified in reality."

Environmentalists consider this mitigation plan a "farce." Former Fish and Wildlife Service biologist Gary Pearson says the procedure is "conceptually valid if we could identify all the elements going into quality of habitat." But, he said, if we had that kind of data "we could shut down waterfowl research across the country."

Environmentalists are particularly disturbed over plans to inundate Kraft Slough in the Oakes area, one of the most complex and valuable waterfowl habitats in the state, for the Taayer Reservoir. Kraft Slough provides nesting or migration habitat for 40 percent of the state's migratory bird species. It has white pelicans, of which there are no more than 50,000 in the world; whistling swans who fatten on the sago pondweed; and the state's only nesting habitat for white-faced glossy ibises.

Kraft Slough, says former Audubon worker Richard Madson, who has made a career of battling Garrison, "is where environmentalists draw the line in the sand." Kraft Slough, says the conservancy district, is the only feasible place in the area for a reservoir.

By now, foes of the project have become openly cynical. Says one farmer: "in the old days Garrison dam was never called a 'sacrifice.' We said we're going to get a big manmade lake and cover a lot of ugly old Indian reservation land." Many regard the project as purely political, designed to line selected pockets. A federal agency employee observes: "When you go to meetings [held by the conservancy] you see not farmers but bankers, agribusiness, and chemical people."

A Bismarck official believes that project supporters' stubborn resistance to compromise stems from their "great fear that if they show any sign of weakness the whole thing will crumble," and they will be left with no project.

Whatever their motives, Garrison promoters have been stubbornly clinging to the vision of the state's needs that emerged from the dust-bowl days. Environmental awareness has scarcely begun to suffuse this thinly populated state. "The fact that a name was affixed to the Cheyenne Wildlife Refuge does not mean it was set aside in perpetuity to frustrate development forever," asserts lawyer Sagsveen.

The need for agreement on a workable plan is becoming more urgent if North Dakota is to make good its claim to Missouri water. This is the only major river not covered by an interstate compact. Agricultural states to the south are already casting around for diversion projects to compensate for the drying up of the Ogallala aquifer, which has been overexploited for many years.

As the new commission, which will have offices in Washington, D.C., Bismarck, and Denver, gets to work, the earth movers are racing back and forth on the next canal, and bulldozing is progressing apace on the Lonetree Dam. The more that can be accomplished before work is suspended, the more reason to complete the job, according to one common strain of logic. Or, as a Fessenden storekeeper put it: "They've made such a mess already, we might as well let them finish—something good's bound to come of it."—**CONSTANCE HOLDEN**