



REPORT TO MEMBERS
TEXAS CHAPTER OF TROUT UNLIMITED

MARCH 1990

This report deals with the Chapter's efforts toward developing a self-sustaining tailwater fishery in the Guadalupe River below Canyon Dam.

BACKGROUND INFORMATION:

Canyon Dam was completed in 1963. Soon afterward Texas Parks and Wildlife began stocking put-and-take rainbow trout. Their program continues to date. Across the state, the total number of trout and sites stocked have greatly increased as a result of trout stamp sales.

Information in support of development of a tailwater fishery below Canyon Dam may be found in two reports of studies made on the area. One was conducted by the Texas Parks and Wildlife Department from February 1, 1967 to January 31, 1968. This study indicated a suitable habitat for rainbow trout and verified over summer survival of stocked trout. The second study was initiated by the Chapter and its findings are utilized in preparing this report to our members.

In 1970 the Chapter invited Howard A. Tanner to study the Guadalupe River below Canyon Dam. Tanner was, at the time of his report, Director of Michigan State University College of Agriculture and Natural Resources and nationally recognized for his work with trout habitat and stream enhancement.

Here are some quotes from his report:

- ... "I am impressed with the resource presented by the tailwater area of the Guadalupe River below Canyon Dam."
- ... "It is far below its potential as a trout fishing area."
- ... "the Guadalupe River, for some ten to fifteen stream miles below Canyon Dam, is a first class trout stream."
- ... "that it is the only trout water within hundreds of miles makes it of far greater significance to Texas."

His report contained observations and recommendations that have, since 1970, inspired the Chapter's efforts toward enhancement of the Guadalupe River fishery.

- ... found the water quality to be good
- ... water temperature favorable
- ... food supply marginal
- ... more public access needed
- ... a need to introduce fish food organisms and insects
- ... stock brown trout for the best chance to establish carryover trout
- ... consider brook trout as secondary target
- ... rainbow trout have less potential for carryover....most hatchery developed strains of rainbow trout have poor potential for natural reproduction and for development of self-sustaining stocks
- ... favorable pH, dissolved oxygen and carbon dioxide concentrations
- ... high water hardness, 175-220 ppm, reflects limestone nature of the watershed.
- ... level of hardness plus other factors of water quality are convincing factors that the stream has a very high productive capacity

Current monitoring of water quality, temperature and other factors indicate conditions today are generally favorable as observed by Tanner in 1970. However, several events have occurred in the past few years which have changed ecological conditions in the fishery below Canyon Dam.

The Guadalupe-Blanco River Authority was authorized to sell water downstream. In filling orders, little consideration was given to the effects of rate release practices on the ecology. Releases varied from bottom scouring 3,000 cfs to lows of 50 cfs. In 1987-1988, a hydro-electric generating plant was constructed. During construction, a number of no-flow periods occurred which may have had drastic effects on the macroinvertebrate populations which form the food base for trout.

During the licensing hearings before state and federal authorities, the Texas Chapter joined with others to fight against proposed flow and other regulations that would have seriously injured or destroyed the Guadalupe trout fishery below Canyon Dam. The regulations now in effect, while not

ideal, represent concessions won in the interest of the fishery.

WHAT HAS, AND IS, GOING ON:

Over the years following Tanner's report, the Chapter has aspired to establish a carryover fishery in the Guadalupe River. If the state is stocking thousands of rainbow trout, aren't they maintaining the fishery?

The Texas Parks and Wildlife Department is providing a "put-and-take" fishing program that offers Texans the unique opportunity to fish for rainbow trout. However, such a program is not directed toward development of self-sustaining cold water fisheries. The fish they stock are apparently from hatchery developed rainbow strains, generally of poor quality and smallish size (9 inches, more or less) and, as noted by Tanner, not likely to carryover. The Department has not, as yet, acknowledged the potential of the Guadalupe River as a self-sustaining trout fishery or the value of such a fishery to Texas.

The Chapter has stocked adult rainbow and brown trout, brown trout fingerlings and both rainbow and brown fry hatched in streamside incubators (a program initiated in 1989). We do not have reasonable opportunity to acquire captured wild adult fish, or eggs from same, which would be ideal for our purposes. However, we have had success in obtaining healthy and strong adults from selected private hatchery sources. We are excited about the results, though evidence is limited at this time, from the streamside incubator program. The fry are hatched in the river water and released into the ecology of the river at a stage which may result in natural adaptation.

... In the early eighties a 6 1/2 pound brown was taken and in 1986 the state record 7 1/2 pound brown. Since the Chapter has been the only party stocking browns, it is reasonable to judge that these fish survived from brown fingerlings introduced in 1972.

... In May of 1986, a five pound 12 ounce rainbow was caught and on November 24th, 1989 a new state record rainbow was caught, twenty three inches, five pounds 15.2 ounces. Both of these fish had survived for some time in the river. We are not the only

parties stocking rainbows. However, in January 1989 we stocked some very strong and healthy fish (rainbows, browns and a few brookies) of large sizes, in the sixteen to twenty inch size range. Likewise, earlier rainbow stocking of twelve to fourteen inch fish, in 1987 and 1988, was done by the Chapter. The state record rainbows, past and present, certainly were carryover fish.

... As late as November of 1989, our members reported catching several sixteen to twenty inch rainbows that survived the heat and low water of last summer.

... In February and March of 1989, our first streamside incubator hatched rainbow fry were entering the river. Beginning in June, and to the present time, many very small rainbows, 3 1/2 to 7 inches, have been reported caught near one of our incubator sites. These fish, we believe, were hatched in the streamside incubator. They have grown and survived the low water and high summer temperatures of the 1989 season.

Isn't there then, significant encouragement that can be drawn from our enhancement efforts?

Put-and-take stocking is being done on the Brazos River below Possum Kingdom Dam by Texas Parks and Wildlife. There has been, in the past, references to potential for this tailwater resource. However, we have no first hand current information in this regard. Assuming the potential exists, success with the Guadalupe should be beneficial to possible development there, as well.

This year we hope to initiate a trout food chain study for the Guadalupe, the first phase of a program to improve and expand its food sources. The importance of this project to our objective is found in the two studies, 1967-68 and 1970. Both indicated the trout food supply to be marginal. These findings coupled with unknown effects on the river ecology following the hydro-electric plant construction, justify the proposed food chain study. We have made an application to Trout Unlimited for a grant under the national Embrace-A-Stream program. Estimated cost of the project is \$21,000. If awarded, we must come up with about \$3,000.00 in cash as our share of the

project, over and above, earned credit for member voluntary hours spent on the project.

Unfortunately, there have been highs and lows in the Chapter's dedication to the enhancement programs over the intervening years. The highs occur when those among our membership, who support the view that the Guadalupe has the potential for developing a self-sustaining trout fishery, are the dominant voice. Lows occur when the dominant voice is that of members wanting to stock large fish principally for the sake of recreational fishing. For the past several years, we have attempted to mollify both views while keeping in mind, that as a chapter of Trout Unlimited, we have adopted, by such association, our parent's credos relating to restoration, preservation, protection and enhancement of cold water streams and their fisheries. In this posture, we are not just a fishing club.

For the current fiscal year, we have to date expended approximately \$5300 for fishery enhancement (stocking fish, incubator operations and access lease expense). Should the grant for the food chain study be awarded, we must raise new funds if we are to maintain the fishery enhancement programs already in place and meet our share of the proposed study.


For now, the only trout stream enhancement game in Texas is being played by the Texas Chapter of Trout Unlimited. Will we be successful in creating a self-sustaining trout fishery in the Guadalupe?

Tanner felt it was possible in 1970. We think there is recent evidence that indicates the effort is worthwhile. It will take dedicated effort, financial support, education of the public and political sectors and regulatory policies that protect the habitat, ecology and environment of the Guadalupe. We must enlist the favorable support of federal and state agencies that regulate the Guadalupe-Blanco River Authority and action by the Texas Parks and Wildlife Department in initiating regulations to protect the fishery from abusive trout fishing practices. A tall order for old men like myself but made to order for the young of you who cherish the privilege of flyfishing for cold water trout in your home state.

All persons residing in Texas who join our parent organization, Trout Unlimited, are presently

designated by national as members of the Texas Chapter, the only existing chapter organization in Texas at this time. Across the state, as of January this year, our chapter roster reflected 861 members assigned to the Texas Chapter. As of January 27th we listed 174 members who support the Chapter activities through donations. Sadly, only 20% of the Chapter's general membership.

We must increase this level of support if our enhancement goals are met. You, our members, can make the difference, for the present and future of cold water trout fishing in Texas.



Howard Itten
Chapter President

HOWARD A. TANNER REPORT
TO
TEXAS CHAPTER OF TROUT UNLIMITED

July 1970

NOTE: Mr. Tanner was, at the time of this report, Director of ^{Missouri} State University College of Agriculture and Natural Resources. His letter of transmittal is included for the pertinent comments therein. The report has been reproduced from old Chapter files.

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August 3, 1970

Report to Trout Unlimited - San Antonio Chapter

Ladies and Gentlemen:

I have enjoyed your companionship, hospitality, and coming together with you to talk about our subject - trout fishing.

I am impressed with the resource presented by the tailwater area of the Guadalupe River below Canyon Dam. It is worth all of your interest and efforts to date. It is far below its potential as a trout fishing area. To more closely approach its potential is going to take time, effort, dollars, and imagination. I hope you can muster these needs and that the people of Texas can enjoy the benefits of your endeavors.

Please judge this report carefully. My time on the stream was limited to one week-end. My approach was general and basic data is scanty. I do have the advantages of experience

with both eastern and western trout streams and personal roles in trout management, trout research, stream ecology - and as a trout fisherman (the latter most important).

I am also far enough removed from the scene to be unemotional and with no personal interest to protect or enhance.

Good luck - I will try to help if called upon.

Sincerely,

s/s Howard A. Tanner, Director
MSU College of Agriculture and
Natural Resources.

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RECOMMENDATIONS FOR THE ENHANCEMENT OF THE GUADALUPE RIVER TROUT FISHERY

Made to the Texas Chapter of Trout Unlimited, July, 1970
by H. A. Tanner

INTRODUCTION

There follows a report of my impressions, observations, and recommendations for the trout fishery of the Guadalupe River below Canyon Dam. My visit (July, 1970) was brief; my observations general and limited. Recognizing these weaknesses, my recommendations are conservative.

SOCIOLOGICAL RELATIONSHIPS

The Guadalupe River, for some ten to fifteen stream miles below Canyon Dam, is a first class trout stream. That it is excellent trout water is important - that it is the only trout water within hundreds of miles makes it of far greater significance to Texas.

The Texas Park and Wildlife Department cannot appropriately spend very much in time and dollars on this fishery. When viewed in the prospective of the total fisheries of Texas this trout fishery of some 10,000 hours per year is insignificant. This department, like all management agencies, has the obligation to apply priorities based on the total needs of the state in developing its programs. The availability of federal aid money (D-J) and trout from private or federal sources, has been the only conceivable way of justifying the trout fishery development, management, and evaluation that has occurred to date. To sum it all up, this agency is responsible for this fishery. The fishery could be expanded with additional effort, and yet, you cannot expect the Texas Park and Wildlife Department to expand its commitment to this project. It is paramount that in its future efforts to enhance this trout fishery, that Trout Unlimited seek ways to add to, not replace, the programs of the Texas Park and Wildlife Department. To do this will not necessarily be difficult, but it will not be accomplished without thoughtful efforts. You must recognize your role, Texas department's role, and promote the cooperation necessary.

As another basic principal, keep good relations with local people, especially land owners. It is not enough that your programs be designed to favor local interest, but how the local people benefit needs to be explained and publicized.

Don't underestimate the tasks ahead. Don't be afraid of failure, but don't be guilty of failure because you failed to deliver on promises of money or work from Trout Unlimited. Your greatest likelihood for failure lies in not being able to generate and/or maintain interest in the project. Second most dangerous possibility of failure lies in alienation of either state agency or local people, or both.

You should not count all your benefits in terms of improved trout fishing for yourselves or others. Your Chapter is desperately in need of recruits. Nothing is more effective than a project that can be shared in bringing together people of similar interest. Further, a project where you can be for something, building something, is far superior to just protecting or opposing something. In these sociological regards lie much of the value of this fishery to Trout Unlimited.

With a strong Chapter you can be a force for good conservation throughout Texas and nationally through your national organization.

PHYSICAL AND BIOLOGICAL CONSIDERATIONS

Stream Flow

Generally, a stable water flow is most desirable. There are some problems on the Guadalupe with high and low releases. Get flow records (probably from U. S. Corps of Engineers), find out when these flows occur. Find out why water was released in these patterns. See if you can obtain cooperation to reduce maximums and increase minimums. Example: high spring flows raise water level above established operating levels in a reservoir that has flood control as one of its functions. The order comes down through channels, release 1200 CFS until desired level is achieved. Result is 1200 CFS flows downstream for 12 days. You might be able to win agreement to 1000 CFS which would take fourteen and one-half days to release an equal amount of water. Similar examples can be drawn at low flows. Why is it 50 CFS? What adverse effects would result from flows of 75 or 80 CFS? You will be operating from a position of weakness; what you achieve in this area will depend on your sweat and your diplomatic skills. You can't effectively negotiate in this area until you do your homework. You must learn the rules, the constraints, the merits of other water interests and users, the Corps, and other water management authority involved before you can hope to be effective. That's the sweat. The other uses of water will have the benefit of water law. In a dispute, your use (recreational) of water will always lose. You must search for ways whereby your interests can be enhanced without disadvantages or at least significant disadvantages to other interests. That's not a fun position to operate from and it's called diplomacy.

Water Quality

Water quality appears to be good. If there is any problem present it is not readily apparent. A qualitative analysis should be made just to be sure. A process called spectographic analysis will give you a reasonably complete read out probably for less than \$50.

The water temperature is very favorable. The fact that the stream is not subject to detrimental low temperature and ice conditions adds substantially to my estimate of the carrying capacity of the river. These reduced temperature fluctuations should be helpful in providing a basis for high bottom fauna (trout food) populations as well as fish populations.

Records indicate favorable pH, O₂, CO₂ concentrations. The relatively high total hardness, 175-220ppm, reflect the limestone nature of the watershed. This level of hardness, accompanied by the other factors of water quality, are convincing arguments

that the stream has a very high productive capability far in excess of what exists there now.

I believe that trout carrying capability extends much farther downstream than is being presently considered.

Trout Food Supply

Food organisms appear scarce both in numbers of species and numbers of individuals. The bottom sampling reports (D-J R. White 1968) do not give much detail but generally support this statement. Many parts of stream bottom, rocks, broken stone, fist size stone, and gravel, are essentially barren. Those aquatic plants present host very few organisms. Bottom fauna populations in portions of stream with mud bottom are the most abundant but even these rate only good to fair. Mud bottom makes up only a small proportion of stream bottom. Crayfish and a few small fish species are present in undetermined numbers. The species of invertebrates represented are predictably limited to those capable of surviving the drastic environmental changes imposed by the upstream impoundment. The fact that some invertebrates are present in this stream does not insure their long range survival. It must be remembered that all animals are a product of their environment and the life forms present in the Guadalupe, below Canyon Dam, evolved in a significantly different environment. Whether they are adaptable to the present regimens remains to be determined. You can hope that those insects that have survived for five years will remain, but the opinions of Trout Unlimited members that they are declining, is not encouraging.

Other Fish Species

Warmouth, Texas bass, bluegills, suckers, gambusia, darters, gizzard shad, were present and observed; other sunfishes, L.M. bass and catfishes are reported to be present. Population estimates are not available but the presence of these other species must be to some degree detrimental to the trout. They represent a restriction on size of trout to be planted because of the predation and competitive roles that must be assumed.

Trout

Rainbow trout from 7-12 inches are stocked in numbers of 12,000 fish annually. In recent years these have come from the federal hatchery system and before that were purchased from one or more privately operated trout production units.

The fish I saw were in good condition, and in good color. The liver and kidneys were examined and grossly were healthy. They were observed to have poor fin structure with much regeneration and are assumed to have been of marginal quality when they left the hatchery.

Rainbow from most hatchery developed strains have a very poor potential for natural reproduction and for developing self-sustaining stocks.

I observed much of the stream in question; at this time the trout population is sparse and consists mostly, but not completely, of fish released this spring. Fish up to four and one-half pounds have been taken and indicate at least a limited survival from one season to the next. Stream could be stocked with many more rainbow trout more frequently if these fish can be made available by the federal hatchery system.

Fishermen

Fishermen consist of fly fishermen for trout, bait and lure fishermen for trout, and fishermen fishing for whatever may be available but mostly pan fish. The reported

presence of large catfish may support groups of fishermen seeking those species, but none were encountered nor were any referred to in the conversations.

Local Population

Businesses serving recreational visitors, land values, and the valley population are obviously still in a transitional stage but it is very clear the major changes in all of these have occurred as a result of Canyon Dam.

Land values reflect recreation and resort orientation. The business obviously caters to the recreational visitor and temporary resident. Most visitors recreate on the reservoir, not on the river below the reservoir.

CONCLUSIONS AND RECOMMENDATIONS

Base your programs on cooperation and mutual support with the Texas Park and Wildlife Department. Seek to extend management input by the Texas Department by moving towards goals mutually selected and agreed upon in writing in advance. Remember, your dedication to this particular body of water is unique and cannot appropriately be matched by a management agency with much broader responsibilities. This does not mean that you should not promote attention to this trout fishery resource by stressing that it is a unique fishing opportunity and therefore merits unusual levels of management attention. Do not promote idea of a separate stamp or license for the taking of trout. Do not promote the restrictions of lures and bait used in fishing the area in question.

Get acquainted with the Corps of Engineers, and the local water authority. Inform yourselves with a view of asking intelligently for the most favorable flows possible. (Previously referred to on page 3)

More public access should be assured now. It is predictable that the need for public access will get more acute as the stream attracts more people and as more land is subdivided and developed with resort homes. Should the success of fish management programs produce a trout fishery of higher excellence, this too will intensify the access problem. Needed access sites should be identified. Fund raising and acquisition should be begun now to acquire in perpetuity those lands that will be needed to insure access. Whatever access exists now, or is developed later, should be protected by good neighbor policies that assure neatness and orderly behavior. Improper use should be discouraged with vigor. If access is lost "the only ball game in town is lost". Trash will be a problem. Restrict overnight camping to areas where trash pickup is assured. Basically, follow the principal of permitting only use that is totally compatible with adjacent interests and neighbors.

I suggest that you attempt to introduce fish food organisms. Begin this by determining if there are any objections, legal or otherwise. If there are no barriers, proceed to search for potential donor sources.

Assume that your chances of success are poor. The reward of success would be so great however, it should be tried. Transplanting of large stoneflies, fast water forms of caddis, mayfly and crane fly should be attempted. Slow water forms of caddis also. Avoid any dirty bugs that bite people or livestock, you have plenty. You might try the tencora crab from the southern hemisphere (Argentina or Chile) if you want a really far out try.

Start by identifying streams that have water quality patterns similar to the Guadalupe River tail water. Don't overlook Missouri and Arkansas. Go to the streams recommended, examine the invertebrates present. Note the great diversity of form, size, behavior,

and the numbers of species present. Note that the volume or the weight per sq. ft. of stream bottom in truly productive streams is much greater than what the Guadalupe supports presently. How to import invertebrates should you choose to try? See if you can find someone who has done it successfully. I don't know of anyone.

If you don't find any other advice on how to transport such life forms, try the following procedure. I have never tried it, but it's where I would start. Use a truck designed to haul trout, construct wire baskets with handles to hold rock - up to about what one man can carry comfortably - select rocks from donor stream that are well populated with the invertebrates desired. Fill baskets with rock - hold crushing and disturbance to a minimum. The baskets are to aid in handling, but also to hold the rock from rolling and crushing all life while in transit. Go into donor riffles with screen and capture additional individuals, pour these into truck containing rock; many will find lodgment. Keep cold - well oxygenated - (remember, most riffle insects require an excellent oxygen supply) and drive like hell for Texas. Go to previously selected sites on the Guadalupe - move baskets into position - cut baskets down to where they are not attractive to the curious and leave in place. Select a swift flowing, but protected, area for those forms from swift water. Select weedy areas (such as the margins above Horseshoe Falls for any slow water forms). Try to match as closely as possible the donor site with the recipient site. Try to place the implant as far upstream as is feasible. An area where public access is limited would have some advantages. Plan to try several areas over several years. If you decide to try - good luck - you'll need it.

Fish Population Management

Encourage the removal of any fish other than trout and small minnow forms by any means that you can achieve. This is probably not a procedure that will accomplish a great deal and should be recognized as such. Nevertheless, the removal of thousands of suckers by the Texas Department may have real benefits and should be encouraged.

Introduce sculpin. Again, check to make sure it is legal. Transport the sculpins in "minnow bucket-like" containers when you bring in trout. Can be collected wild in streams near Neosho, Missouri.

If you stay with rainbow, try to get more fish planted more frequently. Try to get them in better condition when they leave the hatchery; don't let any hatchery give you culls. In any fish introduction try very hard to avoid diseased fish. Disease problems are increasing in severity in trout production across the nation.

Go for broke on brown trout. Here is your real opportunity.

In attempting brown trout you have several alternatives. It is possible that you could go several alternate routes at once. As we discussed, you could locate a cooperative Trout Unlimited member who has wild brown trout in private streams. Secure the cooperation of the donor state and the State of Texas. Capture and transport wild brown trout from 5" up to 14" - to go bigger would take up too much room in the truck. Rent trout hauling equipment, keep everything first class from initial contacts to final delivery. Make it a first class operation - a credit to all concerned. Any shoe-string ding-a-ling operation will only give your outfit a bad reputation. Give plenty of attention to publicity. It would be an exciting project and would reflect favorably on those involved.

Involve a commercial source of financing only if the states agree ahead of time that they have no objection. Haul all the wild brown trout you can get up to 10,000 per year, don't try it with less than 500 per year. Sustain the effort until substantial reproduction is assured.

As another alternative, try to locate commercial or federal sources of brown trout. Try several thousand per year until results can be determined.

I believe some brook trout would be worth a try. They have less potential than the brown trout, but as a secondary target are attractive. Be prepared to accept if the opportunity presents itself.

In all cases of introduction plan for evaluation of returns to the creel, growth and survival. This means that good records should be kept of the fish planted and caught. All trout that are planted should be given an identifying fin clip - clip any fin except pectorals, caudal or dorsal. If introductions are numerous, you may have to use combinations (example: left ventral-adipose).

In closing, a few more words on sociology. You must involve people. It's a temptation to do a job yourself, or rely on a handful of tried and true supporters; use the project to expand your organization. Give people a role they can identify with, then give plenty of public recognition to jobs well done.

Your opportunity is a great one. The time is right. All is needed is imagination, lots of work, some skills, some time, and some money.

Again, my best wishes.

Howard A. Tanner

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