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# LANDA PARK LAKE IS RENOVATED



By

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MILLIONS of Rio Grande perch were involved in a recent "house cleaning" at Landa Park Lake in New Braunfels, Texas. The public interest shown in this project has prompted the authors to record some of the details of the operation with a brief amount of background information.

In recent years the Texas Game and Fish Commission has successfully used rotenone in the renovation of public fishing waters. When undesirable fish populations become established in a body of water, it is very difficult to re-establish good fishing without draining or killing the fish by chemical means. Since draining is not desirable from an economic viewpoint and is sometimes impossible, chemical treatment with rotenone is a most suitable means of killing the existing fish population before restocking with proper fish species.

Rotenone is a chemical compound obtained largely from leguminous plants such as the Derris plant of Australia, Oceania and Southern Asia and the Cube plant of South America. The commercial powder is usually the ground roots and twigs of these plants containing a given percent of rotenone. Rotenone is actually insoluble in water. In fishery work it is made into a thick paste or mortar by wetting and mixing. The paste is then diluted with water and sprayed or scattered over the water. The paste may also be placed in a burlap bag and dragged in the wake of a motor boat. The use of rotenone for killing fish for food has been practiced for many years by natives of tropical countries. Their method consisted of chewing up the plant producing rotenone and spitting it in the water or placing the masticated plant in a basket and putting the basket in the water.

Actually, rotenone kills only insects and gill breathing animals. Its effect upon fish is merely one of suffocation, since it causes the capillaries of the gills to shrink to such a small diameter that little oxygen is taken into the blood stream. Hence, the fish killed are edible and the water safe for all other purposes. Therefore, there is little economic loss in such an undertaking.

Rotenone may be a most useful tool of the fishery worker in reclaiming bodies of water and returning them to good fishing. But first, an accurate analysis of the water must be made by qualified persons to see if rotenone is actually the solution to the problem.

Ascarate Lake at El Paso, Texas, was treated in 1950, and it was the first time that the Game Commission used rotenone on a large scale. Sections of the Blanco and Guadalupe Rivers were treated by Aquatic Biologists and Game Wardens, with the assistance of local citizens during 1951-52.

More recently, part of the North Concho River has been treated as the first attempt to eradicate all rough fish in a stream which is being impounded. In these waters over 90 percent of the fish by weight were rough fish such as gars, carp, suckers and shad. Medina Lake, treated in 1950, may be cited as an excellent example of how good fishing can be restored when proper stocking follows treatment with rotenone. The lake appears to be returning to the excellent bass fishing water which it was when first built.

Rotenone is best used in fishery management to com-

pletely kill a fish population in waters where fishing is poor as the result of a stunted, overcrowded population of one or more game species or when rough fish have taken over and are the predominant fishes by weight. The treating of Landa Park Lake and the Comal River at New Braunfels during December 3-5, 1951 was unique and proposed problems not previously encountered.

Fishermen have had little success in the lake and river for several years, although the clear spring water once had been a favorite haunt of bass fishermen. While game fishes were declining, an overpopulation of stunted Rio Grande perch, introduced from the lower Rio Grande valley, was steadily increasing. Successful rotenone treatment of parts of the nearby Blanco and Guadalupe Rivers gave local citizens and the Chamber of Commerce new hope for improving fishing.

After preliminary studies by the mobile stream survey crew, working on the Guadalupe River drainage, the treatment program was considered feasible and advisable and would be undertaken by the Commission if acceptable to local civic organizations. A new factor not encountered before was the presence of numerous springs throughout the lake, which would prevent a high concentration of rotenone to be maintained. Due to this condition a kill of about 80 percent was all that the biologists would predict.

The New Braunfels Chamber of Commerce was instrumental in the planning of the project and made arrangements for the gathering and disposal of dead fish. The Comal Power Plant of the Lower Colorado River Authority agreed to the plan after determining that rotenone would not be injurious to their copper cooling system. They were most cooperative even though the project caused them many inconveniences.

The lake was treated on December 3rd and 4th, 1951 by Aquatic Biologists of the Commission with the generous cooperation of local citizens. The springs were given several applications of rotenone as Rio Grande perch entered these areas to escape the chemical. The Comal River required little attention since most of the rotenone put in the lake was carried down the river by the strong current. Successive applications at the springs during the week killed many of the "perch" that survived the initial treatment.

Desirable species of minnows and other fish were in no danger of being killed because many were seined and held in a protected area.

Although the lake and river have been stocked yearly with black bass and sunfishes from a rearing pond operated by the City of New Braunfels, very few of these game fish were present in the lake. Probably, more than 90 percent of the fish killed were small Rio Grande perch from three to six inches in length. The remainder were mostly small sunfishes, yellow bullheads and a few bass. The river was found to contain some suckers and flathead catfish in addition to those mentioned above.

The total number of Rio Grande perch killed in the lake, which contains about 20 surface acres, would be hard to determine, because it was impossible to pick up all of them. However, 18 dump truck loads were hauled



This 28-pound flathead catfish was taken at the Power Plant intake screens. It was one of the few large game fish in Landa Park Lake.



Rio Grande perch are being removed from the lake via weed conveyor. It was the second day of hauling. (Photos courtesy Terry Adams, New Braunfels, Texas.)

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# BOOKS



**THE DAMMED MISSOURI VALLEY**  
by Richard G. Baumhoff. 291 xvii pages.  
Illustrated with 19 halftones. Published  
by Alfred A. Knopf, Inc., 501 Madison  
Avenue, New York 22, New York; 1951.  
Price \$3.75.

Bisecting the United States raggedly down the middle is one of the biggest, mightiest, and most controversial rivers in the world. With its tributaries it drains nearly a third of the nation's lands, much of the richest and some of the poorest on the American continent. As taxpayers and as citizens, it well behooves the people of this country to become better acquainted with this vast river basin. Great and spectacular plans are afoot in Washington and elsewhere to harness its potentialities; and the American people will be asked firmly but politely to pick up the multi-billion dollar check if some of them are adopted.

As a newspaper man assigned to cover soil and water conservation programs in the Midwest, Richard Baumhoff has had the opportunity and the responsibility of knowing the region intimately. His travels have taken him into every state, and he has waded through reams of reports issued by the Bureau of Reclamation, the Army Corps of Engineers, and the Department of Agriculture. In this new book he tries, quite successfully, to give the reader as complete a picture as possible of the basin, its people, its resources, and the plans for its development. His newspaper training and experience are evident in three ways: the writing is readable and the material well organized; the research is accurate; and the treatment is thorough. Beginning with a brief narrative trip down the river from its source to its mouth, he launches into a thorough discussion of the various resources, the problems of flood and drought,

the philosophy and culture of the people, and the mind-staggering proposals of Pick-Sloan, MVA, and the President's Water Resources Policy Commission. Each is reported factually and without bias; if the author has an axe to grind, he keeps it well-hidden under his topcoat. All in all, it is an excellent treatment of a difficult subject and deserves careful reading by anyone interested in national affairs.

## Landa Park Lake

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from the weed conveyer and two dump truck loads from the power plant intake screens directly below the lake. Several more loads were taken from the boat dock and the total is estimated at 28 dump truck loads. The majority of the fish killed in the four and a half miles of river could not be gathered and their total, although very great, remains anyone's guess.

Some Rio Grande perch remain in

the lake and river, but results were better than had been anticipated. An estimated 90 percent of the fish in the lake and even more in the river were killed during the work.

With the cooperation of the Federal Fish Hatchery in San Marcos, the New Braunfels rearing pond has been drained and approximately 1,000 yearling largemouth black bass and 34,000 bluegill and redear sunfishes have already been placed in the lake. The State Fish Hatchery in San Marcos will stock thousands more of bass fry this spring followed by channel catfish and sunfish fingerlings during the fall delivery season.

Heavy fishing pressure by local residents and tourists prompted the recommendation of special fishing regulations for the lake and river. Fishing season has been closed until May 1953. When the season is reopened, we hope that "operation renovation" will have proved itself successful in restoring the good fishing of previous years.

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