Activities of the Corps of Engineers Related to Florida Coastal Fisheries

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WE OFTEN HEAR IT SAID that the only way to stay out of trouble is to do nothing. We in the Corps of Engineers find this particularly applicable, since we are the largest construction agency in the Federal Government. Being the principal "doing" agency we have our share of headaches and backaches, and while we do not claim to be perfect we do claim to have a good record.

This paper will be concerned with a rather small segment of the Corps' total responsibilities, namely civil works. To restrict it even more, it will be on civil works in the Jacksonville District that have some effect on coastal waters and estuaries. Only these works could have any direct application to coastal and estuarial fisheries.

The civil works program of the Jacksonville District includes all of Florida east of about Tallahassee, a little of Georgia, Puerto Rico, and the Virgin Islands. Among other things, the Corps is responsible for planning, design, construction, and usually operation and maintenance of federal works for navigation improvement, flood control, and beach erosion control. At present the Jacksonville District has 54 river and harbor projects, one flood control project and 2 beach erosion projects, in total 57 projects. It also has been assigned, or has recently completed, reports investigating the advisability of federal improvement for 31 river and harbor reports, 25 flood control reports and 4 beach erosion reports, a total of 60. This civil works program costs large sums each year, averaging about $12,300,000 annually in the Jacksonville District alone.

All projects that the Corps works on are at the request of the local people. They persuade their Congressman or Senator that a problem exists or that their economic status could be enhanced by a certain improvement. He gets Congress to authorize an investigation, and the Corps of Engineers makes the investigation. An engineering plan is developed and the costs and benefits are analyzed. For an improvement to be favorably recommended in our report to Congress it must be clearly demonstrated that the average annual benefits attributable to the proposed works over their useful life span is greater than the average annual cost of providing and maintaining those works. It is simply based on good business principles. One source of the justifying benefits of harbor projects, for instance, is to the fishing and shrimping industries. Those benefits consist of prevention of damages due to groundings, shorter travel distances to fishing grounds, ability to use larger boats and carry deeper draft cargoes, and increased total catch. Analysis of such benefits requires the careful weighing of such things as whether the fishing ground would be over-fished if the improvement should be provided, whether additional and larger boats would use the port, what effect a larger catch would have on the market, and many other things.

I have often thought of how blissfully ignorant I was during my college days, while studying to be an engineer, of how important would be such things as the price of beans, how many bushels an acre would produce, how much a pound of shrimp is worth, or what a new propeller costs. These things haunt an en-

gineer, because the yardstick of economic worth is the only true measure of the effectiveness of one plan over another, and the only way to see if what we are considering buying is a peach or a lemon.

I can cite an interesting cycle which is apparently about to complete its turn. Back in 1937 and again in 1947 we wrote reports on St. Augustine Harbor, then the state's prime port for shrimping activity. We planned an inlet from Tolomato River to the ocean, stabilized by jetties, and a widening and deepening of San Sebastian River up to the shrimp docks. That improvement showed sound economics and resulted in a favorable recommendation to Congress. The principal justifying benefits were found to be to the shrimping industry. This report was accepted by Congress and part of the improvement was provided by the Corps. But in a few years, the thriving shrimp port at St. Augustine was almost deserted. The discovery of the Tortugas and Campeche shrimping grounds had lured them away to greener pastures. This meant that the Florida shrimp industry had largely shifted to Gulf ports. Although the Corps had already provided good harbor facilities at Charlotte Harbor, Key West, Tampa, and Fort Myers, these became crowded with shrimp boats and more harbors were needed.

In response to this new need of the shrimping interests, the Corps' program was flexible enough to enable us to fill the gap. All facets of the new problem were studied, with the result that deeper and larger harbor facilities were provided at Marathon, Fort Myers Beach, and Everglades. This was done, not through the comparatively long process of the usual report procedure, but as an emergency measure to enable an industry to take advantage of a bonanza of so-called "pink gold." In addition, authorization was given to investigate permanent harbors to accommodate the Gulf shrimp fleet, in case the boom should become a permanently-producing asset. These studies have progressed and federal projects for harbor improvement seem likely. Still others are being studied.

And now this cycle I mentioned may be near its full turn. I have read that the U. S. Fish and Wildlife Service is having quite optimistic results in its scientific exploration for deep water shrimping grounds off Jacksonville and St. Augustine. It may well be that St. Augustine will once more become the queen of Florida shrimp ports. Meanwhile we have completed enlarging San Sebastian River and expect funds to continue the project next year.

Since much of our work is in the coastal area and much of your interest is there too, there are many times when what we do helps you. There are other times when some works could have ill effects on fishing unless careful consideration is given, the facts are known, and there is an intelligent meeting of the minds. We in the Corps of Engineers realize that many species of salt water fish spawn, and feed in coastal waters and estuaries. We also realize that indiscriminately placing of dredged spoil material over feeding grounds can hurt the industry, just as great influxes of muddy fresh water can be very discouraging to salt water species. For that reason we seek good advice from fisheries experts and in the past have shown our willingness to pay for it and the necessary research that goes with it. In the past few years the University of Miami Marine Laboratory has done a study for us. The Corps is also the principal contributor to the support of an area office of the U. S. Fish and Wildlife Service in Vero Beach in connection with the Central and Southern Florida Food Control Project. On our own regular staff we have Mr. Gordon Hall, District Biologist. We also have Dr. Gordon Gunter of Mississippi as Biological Consultant. Our office works closely with the State Board of Conservation, the State Game and

Fresh Water Fish Commission, and many organized groups and individuals who are champions of conservation practices. In short, we try very hard to have our cake and eat it too. We seek very diligently to provide the essential improvements for national progress and at the same time to protect our land, water, and fisheries resources.

As an example, over the past several years, we have found some discontent with the results of the regulation practices at Lake Okeechobee. That large lake is subject to high stages during floods and hurricane wind-tide such as occurred in 1926 and 1928. At that time the sparsely settled lake shores were the scene of mass drownings of over 2500 persons. With today's development in the rich muck soil south of the lake, our responsibility in protecting life and property is even more demanding. There are two main outlets for this lake, St. Lucie Canal to the ocean and Caloosahatchee River to the Gulf. When the floods come water must now be released. The estuary of St. Lucie River near Stuart receives muddy water which drives out the fish, and at least for a while spoils the feeding areas. We have recognized this and have earnestly looked for the facts. We will continue our research there with further field studies in the near future. The U. S. Fish and Wildlife Service is also studying the north fork of the same estuary with Corps funds. Our office has modified its regulation plan to cut the harmful effects to the minimum. Meanwhile, in planning for the Central and Southern Flood Control Project we are now finding what has good promise of being a permanent solution to that problem.

On the other outlet, Caloosahatchee River, there are other problems. The excellent scientific work of The Marine Laboratory of the University of Miami and the Fish and Wildlife Service has reached preliminary findings which seem to indicate that fresh water discharge during rainy seasons may be related to Red Tide in the Gulf. It also appears possible that the Red Tide organism cannot bloom in the absence of water-borne nutrients common to organic muck soils. These same scientists are also progressing beyond the causing stage and into the remedy field. There is reason to hope that the remedy may be simple. At any rate, our office has a keen interest in this research. Plans for future discharge from Lake Okeechobee will be most heavily influenced by those findings, and the flood control planning will be tailored to meet that problem. We already have several alternative plans for providing safe levels in Lake Okeechobee which could well be largely hinged on the final answers of the biologists and other fisheries scientists.

Last year for the first time since 1935 when the Corps began operating St. Lucie Lock on the St. Lucie Canal, we were faced with an unprecedented mullet migration from Lake Okeechobee to coastal waters. We saw many dead fish and others gasping for air as they sought to get to salt water by the millions. Mr. Hall and I arrived there quite by chance at that time. We went into action with further help from the State and Federal fisheries agencies. We began operating the boat locks around-the clock, locking mullet through just as we would lock boats through. This continued throughout the mullet run and resulted in the establishment of a standard operating procedure so that our lock master now can automatically swing into action if and when this ever occurs again. While some fish were killed, since we had no reason to expect this mass migration, we safely passed millions more and saved their lives.

I have spoken at some length of the desires of the Corps to protect fisheries and to provide for other aspects of conservation in its program of planning and construction. There is also a legal requirement for cooperation with fish and

wildlife interests as contained in Public Law 732, 79th Congress, 2nd session, which modifies an earlier act of March 10, 1934. Public Law 732 provides specifically that: whenever the waters of any stream or other body of water are authorized to be impounded, diverted, or otherwise controlled for any purpose whatever by any public or private agency under federal permit that such department or agency first shall consult with the Fish and Wildlife Service and the state agency exercising similar functions, with a view to preventing loss or damage to fish and wildlife resources. The reports and recommendations of those conservation agencies shall be made an integral part of the report of the planning and constructing agency. It further provides that any means and measures required for protection of wildlife resources shall become an integral part of project costs.

We are pleased to comply with those requirements and have demonstrated that willingness by subscribing Corps of Engineers' funds over the past few years which has largely made possible the establishment and maintenance of an area office of the Fish and Wildlife Service in Vero Beach. That office works largely on the fish and wildlife aspects of the $280 million Central and Southern Florida Flood Control Project. The Fish and Wildlife Service receives its own funds for review of the Corps' survey reports planning program, but the Corps has to provide the funds for the detailed biological studies often indicated when the work is advanced to the project stage. The Corps is necessarily limited as to how far it can go in making available for biological investigations funds given to it by Congress for construction. It must necessarily be guided by the restriction of Public Law 732. Sometimes we cannot go as far on research as might be desirable. The solution would seem to be for the Fish and Wildlife Service to be given sufficient funds of their own to do these detailed studies on project planning.

I can cite several other instances where the Jacksonville District has worked closely with federal and state fish and wildlife agencies. A good case in point, however, is the upper St. Johns River portion of the Central and Southern Florida Flood Project. Our original planning on that large project was done in two months and in the face of considerable pressure demanding extreme haste. There had been $60 million in direct flood damages in the area resulting from the 1947 hurricanes and Congress insisted on at least a skeleton plan of flood control. The original plan for the upper St. Johns was little more than engineering judgement, with ample reservation having been made, for detailed planning prior to construction. The plan included three canals from upper St. Johns River to Indian River to divert flood water the short distance to the coastal estuary rather than the 200 or more miles to the mouth of the St. Johns. Local interests along Indian River, including commercial and sports fishermen, felt that such diversion would hurt the fishing. The fish and wildlife agencies also thought so. We had several alternative plans in mind and promised a full detailed study with all factors being properly considered. Meanwhile, we sought the aid of the U. S. Fish and Wildlife Service, the State Board of Conservation, and the State Game and Fresh Water Fish Commission to develop scientific studies to see what results the diversions would have. We also wanted to know how the alternative plans would affect both Indian River and St. Johns River fisheries resources. Meanwhile, we continued our engineering studies. We are now about to complete those studies and find that diversion of flood flows to Indian River is not a good engineering solution. The upper St. Johns flood problems can be best solved by providing flood storage impoundment areas in the

marshes of its upper reaches. This will provide more effective and less expensive flood control than diversion. While the biological studies did not swing the solution in this instance they are in no sense a wasted effort. We will have the results of those studies to influence planning on other future projects. Also, if diversion had not been eliminated for engineering reasons, the biological reasons would have been given their proper major consideration and would likely have had sufficient weight to cause a change of plan. I would like to emphasize that the Corps is not forced into those decisions because of opinions or pressure. Rather, we very strongly desire to make the decisions on the basis of economic merit, engineering soundness, and the results of expert research of all of the other factors that enter in to the project justification. When the scientific evidence and cold facts are present, we have every desire to go along with them. We are also quite willing to change our tentative plans when we can find a better way. It is fundamentally the engineer's job to find a better way to do something for less money.

I hope that my remarks have shown some measure of the very real desire and interest that the Corps of Engineers has, not only in preserving fisheries values, but in enhancing them. The Corps is also interested in continuing to improve the harbors and channels necessary for enabling the salt water fishing industry to operate around the Florida coastline.

The Activities of the U. S. Fish and Wildlife Service, Office of River Basin Studies, in Relation to Federal Water-use Projects and the Marine Fishery Resources of Florida

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MR. RAWLS OF THE CORPS OF ENGINEERS in his excellent presentation has relieved me of much descriptive detail regarding the plans for water-use development in Florida.

In this paper, it is intended to stress the problems of conservation connected with projects of the Corps of Engineers in Florida. The effects of Federal projects on marine resources are, however, certainly not confined to any one State.

Since many persons are not familiar with the aims of the Office of River Basin Studies, it is appropriate to describe these briefly. Since World War II the rate of development of the nation's water resources has been accelerated, largely owing to increased Federal participation. Federal agencies participate in water-resource management programs for the purposes of irrigation, flood control, navigation, and power. Many state, municipal, and private organizations also take an active role in such development. Conservationists have long recognized the impact of water-use programs on the fish and wildlife resources. The need has been apparent for incorporation into these construction programs of measures for conservation of fish and wildlife.

In response to this concern, there was enacted, on August 14, 1946, the