

more special interest groups. The fishery administrators, at the earliest possible time, must dispense with this limited sectionalism in so far as migratory marine species are concerned and begin to consider the overall needs in a given fishery. The migratory striped bass is an example. This fish migrates from Chesapeake Bay to Maine and back again. Each state has an interest, either from a commercial or sports-fishing standpoint. The administrator must be informed of the biology of this species before taking a position on its management in any given locality. It is probable that the Atlantic States have done a poorer job of managing the striped bass than almost any other species. In spite of extensive research, legislation has been enacted in some states which is entirely illogical. The state of New Jersey, for example, prohibits the commercial capture of striped bass in her waters. And yet, all the bass found in New Jersey are migrants moving either north or south along the coast. Since bass do not spawn in New Jersey waters, this prohibition has little or no bearing on the total population. The administrator in such a case must lead the way by pointing out the inadequacies of the law. This must be followed by suggestions for amending the outmoded statute.

These cases have been given to demonstrate the difficult and diverse problems facing the fishery administrator today. Most administrators are faced with problems of management on non-migratory species which are just as difficult as those described above. He must fight a deeply engrained tendency on the part of watermen to resist the adoption of new methods and the application of new techniques. He must evaluate and handle pressures originating from both the commercial fishermen and the sportsmen. He must referee disputes between various segments of the commercial fisheries, who are competing with each other for a share of the same fish population. And finally, he must resist the efforts of pressure groups to influence his decisions because of political expediencies of the moment.

In closing let us consider personally the typical fisheries administrators of the Atlantic Coast. Before assuming their present capacities they were either real estate salesmen, lawyers, politicians, biologists or fishermen. None is fully equipped by training or experience to meet the diverse problems confronting him. Yet all are striving sincerely, usually against almost insurmountable odds, to improve the fisheries, and thereby raise the economic and social level of the people of their states. The Atlantic States Marine Fisheries Commission has done a great deal to inform and help the administrators, and to equip them better for their jobs. Even at best, however, the job is not easy. Pity the poor fisheries administrators! In addition to the burden imposed by his fishery problems in most cases he carries the weight of the electorate on his shoulders.

Problems Of Fishery Administration In Florida

GEORGE A. VATHIS, *Supervisor, Florida State Board of Conservation,*
Tallahassee, Florida

ACCORDING TO THE LAST FEDERAL CENSUS Florida is the third fastest growing state in the union. Its population has increased 46 per cent in the past ten years, and people still are moving in at the rate of 1,000 a day. Communities are growing into towns and towns are growing into cities. Industries are mush-

rooming, businesses are expanding and resources are being explored and utilized at an unprecedented rate. Such phenomenal growth must inevitably be accompanied by a few growing pains. Pangs already are being felt in the form of overcrowded schools, bulging thoroughfares, social service problems, mounting cost of state and local government and increased pressure on natural resources. All of this, naturally, has had its effect on the administration of Florida's salt water fisheries. Today a record 9,000 commercial fishing boats are plying our coastal waters; retail seafood establishments are multiplying at the rate of 200 a year; this winter well over a million sports fishermen will line our beaches and bridges and troop aboard our charter boats to sample Florida's fabled salt water fishing, and scores of new resorts and businesses will spring up to take care of them.

The whole thing constitutes a tremendous business—a business dependent entirely upon a productive salt water fishery, which in turn is dependent upon us, the conservation administrators. It is a tremendous responsibility and a responsibility knotted with problems. The swift growth of the state has not actually *created* the problems, however; it has simply brought out in glaring relief the same difficulties which have been in existence for years. Any state with Florida's geographical design is bound to present a tidy bundle of conservation headaches. First it has 5,000 miles of coastline, gashed by more than 70 tidal streams and fringed with innumerable islands and capes. That creates a major enforcement hurdle. Second, it is a long state, extending roughly 900 miles from Key West to Pensacola and exhibiting all the varied climatic conditions to be expected over a 900 mile distance. It is not unusual to find a winter temperature variance of 40 degrees between northern and southern extremities. Naturally this tends to complicate any sort of uniform management program. On top of this, Florida's population, economic and social outlooks vary as sharply as its geography and climate. Generally speaking the lower peninsula and much of the whole east coast is populated by former Northern residents, who came to the Sunshine State in comparatively recent years. The emphasis there is on tourists and tourist attractions. On the other hand most of the upper West and North Gulf Coast counties are made up of long-time residents who tend to stick to their farming, fishing or their turpentineing, and often display a thinly veiled antagonism to any attempt to infringe upon their individuality. Though the differences are not as marked as they once were, the aims and philosophies of the two sections are still far from parallel. This makes any attempt at uniform regulations a particular knotty undertaking. A bitter conflict between sports and commercial fishermen has created similar problems in many sections.

These are nonetheless details rather than problems in themselves. The real problems confronting salt water conservation in Florida can be divided into three parts: (a) a shortage of funds; (b) a shortage of knowledge; and (c) a *surplus* of laws! These are three problems that must be solved before Florida can get on the path toward an earnest and effective salt water conservation program. However, they cannot be solved one at a time with any degree of success; there must be a three-front effort, with a gain here and a gain there until we are safely past all three.

Speaking from an administrative standpoint our present statutory tangle is particularly hard to unwind. At the present time Florida has a total of 420 laws affecting salt water conservation. Of these 170 are general statutes or rules

of the Board. The remainder—a staggering 250—are either local laws or general laws of local application. When we consider that less than 20 species of marine life are specifically regulated by law and that a maximum of 39 counties are involved, it is easy to see the problems we face in interpretation and enforcement. When the writer took over the supervisor's post there was not even an existing compilation of salt water laws. They were scattered at random through countless volumes of Florida law, some dating back 40 years or more. It was impossible for anything less than a trained legal mind to ferret them out. The Attorney General's office was asked to bring some sort of order out of the existing chaos. Significantly it took the Statutory Revision Department nearly a year to find and compile the mountain of legislation.

The result at least showed us where we stood, but, if anything, it further complicated enforcement procedure. As the Attorney General's office so aptly put it, "The laws of Florida relating to salt water fish and shellfish have accumulated through the years into a patchwork that defies the layman to discover just which laws now apply in many counties"

So many local and general laws have been passed down through the years that the result has been duplication, contradiction and sometimes a bewildering mixture of both. It was apparent that many laws were passed without knowledge of existing legislation; some, by implication, repealed *portions* of old laws but left confusing fragments of their predecessors in full force and effect. The result is that in some counties it is next to impossible to determine where one law leaves off and the other begins.

Many of these acts were general laws of local application adopted via the so-called "population" system. Under this system the act is written into the book as a general law but is made to apply only to the county or counties within a given population bracket. The net effect is a "local law." However, in many cases, counties for which the regulation was originally designed have grown out of the specified population bracket and other counties have innocently grown into it. For example, we are currently in the unique position of having a solemn and fully valid closed season on mullet roe in Gadsden County by virtue of such a law. Gadsden county is a renowned tobacco and peanut producing area lying a full 60 miles from the Gulf of Mexico! This particular law is an old one and it is not known which county it was originally intended for, but certainly it wasn't Gadsden. Another inland county recently woke up to the fact that it had a full-fledged shrimp netting law, while its coastal neighbor, for which the law was intended, had none.

Some local laws of particularly ancient vintage apply to specifically named counties which have since been carved up into two or more counties, thus raising a ticklish jurisdictional problem. Other local laws are diametrically opposed to the provisions of certain general laws. For instance, a minimum mesh size may be set out on a statewide basis in a general act; then along comes a local law providing that fisherman in Whositz County may employ mesh a half-inch smaller. Other counties follow in its footsteps and soon what, on the books, is a statewide regulation becomes almost totally nullified by a rash of local legislation.

Many other well-intended and potentially beneficial laws have lost their effectiveness through loose construction or failure to cover enough ground. Although it may be hard to conceive, there are prohibitory statutes that

are so limited that they fail even to provide for the seizure of evidence! In one county it is illegal to set crawfish traps, but there is absolutely no provision for the seizure, confiscation or disposition of the traps. Thus we are faced with the problem of catching the trapper red-handed, then leaving his traps intact to go into court with a "my word against yours" case. In other laws there is authorization to seize illegal gear as evidence, but it may be confiscated only upon conviction. In cases of "runaways" or a bond estreature (which in Florida does not necessarily constitute a conviction) where no conviction goes on the record, we are nearly always left in a legal muddle.

This assortment of contradictory, outdated and overlapping statutes leaves fishermen, conservation agents and even judges in a perpetual state of confusion and makes effective enforcement a virtual impossibility. Until the existing laws are weeded out, simplified and strengthened, the Conservation Department faces a well nigh insurmountable administrative problem.

In the process of threshing out problem c—shortage of funds—we are bound to land in the middle of problem b—shortage of knowledge. This problem is more than anything else responsible for the bewildering surplus of laws. The obvious tendency is to put the blame on the legislature and let it go at that, but that is neither fair nor just. In most cases it was acting in what appeared to be the best interest of conservation. But its members lacked the same vital ingredient we are missing—reliable, concrete information on the needs for a productive fishery. Remember, they didn't even have a simple compilation of existing laws to guide them. Worse than that, they had absolutely no biological or technical data on which to base a decision. In the past two years the writer has discussed Florida salt water fisheries problems with dozens of lawmakers, and in every instance they are willing and anxious to enact good sound conservation laws. All they want are proven facts on which to base them.

These facts must be obtained in order to maintain a productive marine fishery. TIME magazine not long ago reported that one big industrial concern spends over a million dollars a year on scientific research, yet in all the years Florida has capitalized on its vast seafood and sports fishing industry, it has spent less than \$100,000 on marine research! And until a very few years ago it had spent nothing! This sin of omission already has undoubtedly cost the state what was once a seven-figure sponge industry. Unless the seriousness of the situation is realized and action taken it will undoubtedly cost much more.

Currently we are spending less than \$25,000 a year on biological research, and only in the past few months have we been able to lay the ground work for a sound statistical program—certainly a basic essential in the administration of any fishery. The department has tried to keep production records, but the information on which they are based is so obviously distorted it is impossible to give them a great deal of credence. So, actually, we find ourselves in the dangerous position of not knowing where we are going. We think we know our fisheries production is dwindling, but we don't know how much or how fast. This information we *must* know, and along with it the scientific data necessary to doctor effectively whatever sicknesses may show up.

So far we have not even scratched the surface in our fight against this problem. We have done a little research on mullet, less on sailfish and enough on sponge to know we should have done it 10 years ago; a creditable oyster

rehabilitation program is under way. Of the numerous other food fish, game fish and shellfish we know little or nothing. We frankly do not know whether our closed seasons and length limits are wise or unwise. We have no scientific findings to back up our judgment, and until we do, Florida's salt water conservation program cannot possibly be on sure footing.

Right now a controversy rages throughout the state on whether or not the snook should be placed on the game fish list. There may be a legitimate need for this action and there may not. We do not know the answer and only a scientific investigation of the snook can uncover it.

This is just one of the many perplexing problems the lack of scientific knowledge has produced. We are constantly confronted with questions from commercial fishermen, sports fishermen and conservation clubs that can not be answered because we have no findings to back up any answers.

The problem labeled a "shortage of knowledge" isn't necessarily confined to the field of marine biology. The citizens themselves are woefully uneducated in the problems of salt water conservation. A long-range comprehensive information and education program has for years been an accepted essential in most conservation programs. Here in Florida our fresh water colleagues have had such a program for nearly four years, but aside from a lecture here and there and a few elementary educational pamphlets we have done nothing. Why haven't we? That immediately brings us into problem a—shortage of funds. Just as problem c, a surplus of laws, is a result of problem b, a shortage of knowledge, so is problem b the result of problem a, a shortage of funds. No bureau ever has quite enough money—in its own opinion—but if there was ever a legitimate case of budgetary anemia the Department of Conservation has it. Despite the fact that we are charged with conserving and protecting an industry which brings in an estimated \$500,000,000 annually, our total operating budget has never exceeded its present \$214,000. Until 1949 the department has never spent more than \$140,000 a year. This year our budget was raised to \$214,000, but subsequent economy cuts reduced the actual available funds to \$180,000. Out of this we were absolutely forced to make a fresh "capital investment" of \$25,000 in 11 new patrol boats. This cut our actual operating funds for the year to \$155,000. As it stands now that is all the money available to administer Florida's salt water fisheries program. On this amount we are able to maintain a staff of 46 people, 41 of whom are conservation agents.

Though the bulk of the money goes for law enforcement, we are still woefully weak in that department. A total of 34 agents and 7 supervisors are charged with patrolling 5,000 miles of coastal and tidal waters. They do it without the aid of airplanes and without radios; in some cases they do it with nothing more than a beat-up boat and kicker. By stretching a point we are able to pay our agents an average of about \$165 per month.

To do an adequate enforcement job, Florida should have 50 per cent more men, well-trained, well-equipped, well-paid and secure in their jobs. But all of that requires money, a commodity in short supply.

The same crimp in purse has held up our research program. This year we are spending only \$22,778 on scientific investigation—roughly eight per cent of the amount spent by our companion agency, the Game and Fresh Water Fish Commission. The facilities and trained scientists for this important work are available at the University of Miami Marine Laboratory, but the money so far has not been made available.

There are thus many knotty details, but the real basic problems in the administration of Florida's fisheries are interwoven in the three problems outlined. When those are remedied, our conservation program will be on its way to solution.

Problems Of Fishery Management In Maryland

R. V. TRUITT, *Director, Maryland Department of
Research and Education, Solomons, Maryland*

THE OBJECTIVE of conservation administration appears to be that of promoting human welfare, whether the subject is soil, water, mineral, forest, fish or otherwise. It seeks to do so by promoting effective practices and operations on increased quantities and volumes of fish—in the case here being considered. More specifically, conservation administration seeks to reach its objectives by stepping up the effectiveness of existing conservation agencies, whether or not they are concerned with statutory regulations, education or the gathering of factual information. All of the maritime states have regulatory agencies, while certain others have one or both of the agencies concerned with fishery research and conservation education programs. Virginia and Maryland, among others, have all three of these departmental activities, while most of the states are striving to that end.

The chief problem in fishery management generally seems to be that of relieving the administrative bodies from pressure groups as reflected in politics. There are a few states where this has been done to a marked degree, but in by far the greater number of instances there remains the element of fear and trembling as to where, when, and upon whom the politician in one size or another will descend, or when a management program will be curtailed or abolished because of the feelings and unthoughtfulness of little men. The writer speaks as a citizen from one of the states in the Union where marked progress has been made in the administration of natural resources, and where much of the political influence has been removed. It should be said, however, that the Maryland status is far from the millenium in this connection.

Natural resources belong to the people. Legislative action concerning them is an expression of the will of the people. The people, broadly speaking, want sound administration of the resources, including law enforcement. But that segment of the people directly dependent upon a resource, such as the fisheries, typically, is greatly concerned that the *status quo* be maintained rather than desirous of trying new programs and improved administrative practices. Programs and their administration in the past have not been effective in all too many cases and areas. Thus the struggle goes on in which conservationists and administrators are striving to do a better job in maintaining and rehabilitating resources, and the operators, in this case the fishermen, are concerned lest some of the conditions surrounding them be changed, such as the size of fish, season of fishing, type of gear, or other restrictions. How, then, can the quality of administration be improved? The answer appears to be found in the educative process, a slow one to be sure, and in the acquisition of facts on which to build management programs.