

THE CALIFORNIAS AND SOME FISHES OF COMMON CONCERN

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It was 5 years ago at Lake Arrowhead that I had the privilege of opening a CalCOFI Symposium that represented a significant departure from practices of the past. Today, I have a similar privilege, for this symposium represents an equally sharp break, one that can have, and I hope will have, far-reaching consequences as far as the fishes and the fisheries of the California Current are concerned.

At Lake Arrowhead in 1967, CalCOFI was seeking communication and rapport with the lay public in the State of California that was for a variety of reasons interested in fisheries and fishery-related problems. We the scientists hoped that by taking a new approach, and by inviting as participants people from a variety of callings, we could contribute to understanding, help explain the point of view of the scientist to the layman, perhaps help ease the tension and establish a channel between those two protagonists so frequently at loggerheads, the commercial man and the recreationist.

The purpose of that symposium was to consider:

“The living resources of the California Current System; their fluctuating magnitude, distribution, and susceptibility to use for the benefit of the State of California.”

We asked these questions:

“What are the resources and what is the state of our knowledge?”

“What are the legal, economic, sociological and technological problems impeding their best use? How can these be resolved?” (Messersmith, 1969).

Whether or not the symposium reached its stated and implied objectives is arguable, but there is no question but that it represented a significant step forward for fisheries. Surely, conflicts between user groups remain with us. The scientist too often still has difficulty translating his findings into English (or Spanish) for the benefit of those who pay the freight and must use these findings for diverse reasons. Yet the fact that we are prepared to make another significant departure from the past convinces me that CalCOFI has indeed served well, that the body of knowledge embodied in the report of that symposium and those that followed it have paved the way so that we are now able to do what would have been impossible in 1967.

We are today concerning ourselves not just with the people of California and the fisheries adjacent to their coast—the original frame of reference of the Marine Research Committee (MRC) and CalCOFI—but with the people and fisheries of Baja California regionally and the Republic of Mexico as a whole. This is not only right and proper, it is long overdue. One has only to look at the distributional charts of the key species of Baja and Alta California to see that this is true, and it comes as anything but news

to this group or to anyone else associated with fisheries research, management, or utilization in this part of the world.

In 1967, we were prepared only to look inwardly, and with good reason, the internal pressures being what they were. Now CalCOFI has come to the point where it can look at resources as a whole and invites and requires, for scientific success, bilateral accord and cooperation between the appropriate governmental functions of the United States and Mexico. This has actually begun in the last year.

I said we were then prepared only to look inwardly. This is really not quite true—we know we had ultimately to look outward but it was a matter of one step at a time. However, only one of the speakers made specific mention of the key importance of Mexico. Robert Vile (1969), representing the Ocean Fish Protective Association, said,

“Another area which looms large on the horizon is our relationship with Mexico. Strong cooperation between our government and that of Mexico must be worked out, since so many of our sport fish migrate between California and Mexican waters. As both commercial and sport fishing expand in Mexico, this will become another steadily rising source of pressure on the *same* resource.”

I doubt that he, or any of the rest of us, thought that only 5 years later CalCOFI would be taking so broad a look that its proceedings would require a bilingual approach and simultaneous translation.

In a literal sense, CalCOFI is concerned with a limited array of species, those enumerated in California law as subject to a special tax. However, the research organizations represented in CalCOFI have a much broader concern, and CalCOFI research itself has covered a wide spectrum in its attempts to understand the dynamics of the living resources of the California Current System.

The CalCOFI Committee envisioned CalCOFI's role in these terms in its report for 1963–1966 (Ahlgren et al 1966):

“Clearly the direction of research that CalCOFI recommends is far from a singleminded inquiry into the anchovy. We believe that we would be serving neither science nor the state were we to adopt the anchovy fishery as a single object of study. Rather we are recommending an adequate continuing and defensible study of the anchovy and sardine and an expansion of the broad studies of the pelagic environment, which have paid off so handsomely. In this we believe that we are choosing a multilane highway into the future, which not only coincides with the scientific objectives, but serves the statutory objectives of the State and the MRC, in manifold ways.”

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Figure 1

Figure 1. Map of California by Hondius, 1631, Amsterdam. Courtesy Huntington Library, San Marino, California.

A broad view is, I believe, the only acceptable one. Because of its long and successful history, I hope that CalCOFI can play the lead in meeting demands of the future so far as fisheries of the Californias are concerned. It will, no doubt, require some change in its present terms of reference and some means of close official collaboration with Mexico's fisheries research organizations if it is to do so.

Let me turn to specifics.

I want to confine myself geographically to the States of California and Baja California and the territory of Baja California Sur—essentially the "Californie Isle" depicted by Hondius in 1631 (Figure 1). Parenthetically, one wonders what sort of a group would be gathered here today if Hondius had been right.

I particularly want to consider the coastal stocks found most abundantly from Point Conception to Cabo San Lucas. These species of common concern to Mexico and the United States are pretty much restricted distributionally to the waters adjacent to our two nations. Those that reach Canada do so as strays or in a couple of cases as northern fringe populations. I am not going to discuss essentially nonmigratory species that are found in the territorial waters of both nations (e.g., kelp bass and abalone). Nor am I going to consider the highly migratory high seas fishes that are certainly of great importance to Mexico and the United States, but which do not fit my definition. These are, of course, the tropical and temperate tunas and the billfishes.

What I am concerned with are certain of the "Marine Research Committee species" (those subject to a special California landing tax), particularly the Pacific sardine, Pacific mackerel, and northern anchovy; and another group outside the CalCOFI purview in the sense that they are not subject to the special tax. They are, in fact of particular—not sole, I hasten to add—concern to southern California sportsmen.

The group includes for my purposes the barracuda, bonito, white seabass, and yellowtail, though some others of lesser significance or unknown migratory habits must not be overlooked—ocean whitefish, sheepshead, and various other sciaenids for instance.

What I am sorting out, quite obviously, are those species which (1) meet the criteria for coastal stocks as defined in the United States' position for the Law of the Sea Conference; (2) migrate along the Pacific coast between Mexico and the United States; but (3) do not range as far as Canada in substantial numbers except as relatively discrete populations. In other words, key fishes the rational long-range management of which depends on bilateral action. That is why my laundry list does not include such obvious candidates as the jack mackerel and hake. The first may not meet criterion (1) and neither may meet criterion (3). There is nothing unique about this approach—I had occasion to put it this way in 1968:

"The living marine resources off the coasts of the States of California and Baja California and the Territory of Baja California Sur are many and varied. In the aggregate they represent a huge

stock which is being utilized only in part at the present time. While some of these resources are found only in one country or the other, many of them occur both in Mexico and the United States and others have far broader ranges. Such species as northern anchovy, Pacific mackerel, sardine, barracuda, yellowtail, bonito and white seabass are now the object of fisheries in both nations. . .

"Future prospects are for increased fishery utilization by Mexico, the United States and others. What can and should be done to afford maximum protection to the legitimate interests of the Californias?

"Because the eastern Pacific fishery resources and interests, particularly those of Southern California and the west coast of the Baja California Peninsula, are in such a large degree the same, there is the very evident need for cooperation between the United States and Mexico in fishery matters if their common resources are to be properly husbanded." (Roedel, 1968a).

I am suggesting that now is the time to take scientific stock, to expand our base of scientific knowledge where necessary, to act jointly in so doing, and if possible to use CalCOFI as a vehicle. I am suggesting that sooner or later some sort of an arrangement is going to have to be worked out between Mexico and the United States with respect to the conservation of this group of fishes.

You may say this is looking a long way down the road. Perhaps so but I think we have to. Scientifically sound expended programs mounted now on some cooperative base agreed to by our governments will only, with luck, provide the data necessary for management by the time the need for it is with us. Regardless of how the law of the Sea Conference turns out, regardless of whether conservation action is unilateral, bilateral, or multilateral, some sort of controls will almost surely be necessary beyond those we have now. And there are those who say the day may already be past.

The first thing we have to find out is how much we know. This is too often overlooked. Faced with a new challenge, some of us charge madly off in all directions, busily reinventing the wheel.

We know quite a great deal about the "non-MRC" California fishes and more than some people might think about those from Baja California.

For example, in pre-CalCOFI, pre-World War II days, the State of California conducted many research cruises particularly along the west coast of Baja California, but also into the Gulf of California. These cruises were made by the California State Fisheries Laboratory (CSFL) under terms of permits issued by the Government of Mexico. Extensive cruises by CSFL research vessels began in 1931, but as early as 1917, the launch "IMP" spent 3 days at the Coronado Islands trawling for young fish, with what success the surviving record does not tell us (Roedel, 1968b).

Though the Government of Mexico had no laboratory in Baja California during the 1930's, it did offer fine cooperation to the State researchers, issuing

the necessary permits, expediting port procedures, and providing great hospitality at what were then isolated outposts south of Ensenada. The Mexican fishing industry was equally cooperative during the sardine and mackerel tagging programs, installing and maintaining electromagnets for tag recovery at the Ensenada plants.

The tagging programs first demonstrated that these were in fact common stocks, that the Mexican and American plant operators were drawing from a common source at least in southern California and northern Baja California. Pacific mackerel migration patterns, for example, showed some intermingling from central Baja California to central California. The sardine studies demonstrated the same interdependence.

In the post-World War II era, the CalCOFI program came into being and with it the blossoming of that fundamental tool for fishery-independent population estimates, the egg and larva survey.

The results of this survey reiterated for some species and established for others the joint Mexico-United States nature of so many of these key resources. The distribution of spawning stocks of anchovies and sardines both above and below the international boundary is an example.

There were other studies of particular species, some conducted under university auspices, some under Federal, some under State, still others under various combinations. We learned much, for example, of the life history and migrations of yellowtail and barracuda through State-operated partially federally-financed (Dingell-Johnson) projects (Baxter et al, 1960, Pinkas, 1966). These studies required the full support of the Mexican Government and a great deal of help from both sport and commercial sources in California for their success.

Now we are conducting integrated research with Mexico's fishery research laboratories in the standard CalCOFI framework. And currently scientists from California and Mexico are cooperating informally in a tagging program. I hope that these efforts not only continue but expand and strengthen. Both our nations have too much at stake to do otherwise.

On the United States' side, we are taking major steps to expand our research base, with particular respect to the so-called migratory marine game fishes, especially barracuda, bonito, white seabass, and yellowtail. We are taking inventory of what we know and identifying that which we do not so that a sound and practical research program can be mounted. This work involves both the Federal Government and the State, and a joint document defining the "state of the art" and recommending a course of action is due soon after the first of the year (1973).

We are concerned to a large degree with stocks common to both nations and with what we see as the ultimate need for our two governments to work jointly for resource conservation if these stocks are to be maintained. We hope that Mexico will join with us in this augmented effort.

It is all well and good to preach augmented research and it is a relatively easy concept to sell. The question

is where does it lead? We have a tendency to study things to death and to expect all the answers before any use is made of the data in a managerial sense. However, in this day and age you cannot postpone decisions until the last bit of information is in. In this connection, it is now becoming quite fashionable to quote John Gulland (1971), which I shall now do:

"It is obviously a fallacy to think that scientists given time, and perhaps also money, can produce the complete answer to management problems, e.g., specify the precise value of the maximum sustained yield from a particular stock of fish, and also the exact levels of fishing, and of population abundance required to produce it. The inability of scientists to produce such complete and exact analyses has resulted (sometimes deliberately) in a delay in the introduction of management measures . . . The obverse of this fallacy is that a complete scientific understanding is necessary for effective management."

Gulland's point is extremely well taken for we have had a very definite tendency in the past to postpone action until it was too late, simply because those of us with managerial responsibilities felt we could not act until the scientist felt he had all the answers. We need look no further than the collapses of the Pacific sardine and the Pacific mackerel fisheries in California for prime examples. In these cases, management actually lagged far behind science which transmitted the warning (albeit with data far less than complete) far in advance of the fact. I hope I make it clear that I certainly do not propose an expanded research program as a delaying action. Rather, I look upon it as necessary to provide us at least part of what we need to know before the hour of decision arrives.

I remarked earlier that there was nothing really new in what I have discussed so far as expanded research goes. That is equally true of international cooperation for management. Many of us forget, if indeed we ever knew, that Mexico and the United States entered into a convention including an international fisheries commission in 1926. The need for it was based chiefly on prevention of smuggling and on general concern for the barracuda resource and its economic future, but it was abrogated in 1927 before it had a chance to produce. The point is, such a treaty did exist.

The California Division of Fish and Game continued the barracuda research, started by the Commission, which culminated in a publication on barracuda life history and its fishery by Lionel Walford (1932), who was himself a Commission scientist during its brief existence.

We now have the bilateral agreement with respect to the contiguous fisheries zone which expires next January 1, 1973. One thing that the negotiations leading to the bilateral did was to emphasize the interest in Baja California of United States anglers. Those in the Federal Government who were concerned in the negotiations were quite aware of the importance of Baja California to commercial interests, but were less appreciative of its importance to sport fishermen.

It came out quite clearly that not only do we have a common resource on both sides of the border, but that sportsmen from north of it are likely as not to fish to the south so long as they can within the framework of Mexican law. Finally, "both delegations recognized the increasing need for joint cooperative efforts directed toward research on and conservation of the many living marine resources of common concern." An annex to the formal report called for "the two nations to exchange information and develop coordinated programs of research and management with special respect to anchovies, sardines, and hake." (Roedel and Frey, 1968).

Another organization exists which has at times interested itself in fisheries matters. I am speaking of the Commission of the Californias, that rather unique body made up of delegates from the State of California, the State of Baja California, and the Territory of Baja California Sur. This Commission can perhaps play an increased and significant role in developing and coordinating plans for research and when and if necessary management of these stocks.

I am not prepared to recommend a course of action for management at this point in time. For one thing, we need to know better where we are in terms of knowledge and as I mentioned earlier, we will not have an evaluation completed until early 1973. The Law of the Sea Conference may well change many of the rules of the international game and it might be good counsel to await development there before taking further action here. The action when it comes may take any one of several forms. One which obviously comes to mind is a formal bilateral treaty between our two nations. Other less formal steps are possible. My purpose now is to get people thinking about the problem both from the points of view of science, of management, and of politics.

I have not mentioned until now the obvious impact of joint international management upon the prerogatives presently exercised by the State of California.

They are, however, apparent. Given an international arrangement, the State would lose its present authority to manage these stocks except to the degree that it could influence any international commission that might be established. This is a factor that State authorities must weigh in the balance.

So far as CalCOFI is concerned, I want to say once again that I feel it can and should play a significant role in any research program expanded to include migratory marine game fish of common concern. CalCOFI has a long and honorable past. I hope its future is even longer and more honorable, that its frame of reference is broadened, and that the scientists of the Republic of Mexico join in as full partners.

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