

## HOW CAN THE SCIENTIFIC COMMUNITY BEST CONTRIBUTE TO THE RESOLUTION OF THESE VARIED PROBLEMS?

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I have noticed that almost every previous speaker has made some comment on the topic on which I have been asked to talk; this is gratifying to me as a scientist, for it means that it is rather widely recognized by the representatives of the very diverse viewpoints who are here today, that the scientific community does indeed have a role to play in the solution of the problems facing California fisheries.

What I'm not so sure about is whether the previous speakers have really stopped to think about the composition of the group of people they refer to as the scientific community. We should not forget that their employers are very diverse, and employ them to look at the same problems from quite different points of view. Employees, including scientists, may be expected to keep the main interests of their employers in mind when making value judgements. To take a concrete example, it would be rather surprising to many of us if a scientist of the Bureau of Commercial Fisheries came out with a recommendation against the establishment of an anchovy reduction fishery on the grounds that it might be detrimental to the interests of sport fishermen. It would, of course, be laudable and proper, that he should do so if his data indicated to him that this was the true situation. The opposite could, of course, be true with a scientist employed by the Bureau of Sport Fisheries and Wildlife, who might well make the opposite recommendation about the same fishery.

Looked at this way, it is evident that the scientific community in the broad sense is unlikely to speak with one voice in matters controversial, and the history of the past few years has shown that this has been so. We should guard against this tendency in the only way possible, by maintaining our integrity and our objectivity. This we must do if the planners, who will not be of the scientific community and who must take our statements at face value, are to make effective use of our findings and judgements. If we join the ranks of those who plead the causes of special interest groups, and do not try to evaluate the whole needs of the state, then we lose the right to call ourselves a scientific community.

We must also recognize that this is an era of considerable confusion, generated by an unprecedented degree of economic and institutional change in the State of California; the scientific community is confused, wondering where it stands in relation to the intense phase of planning currently going on; the fishermen are confused, wondering how best to react

to the economic changes of the past few years. Add to this the complexity created by the many, and sometimes vociferous, special interest groups and you have sufficient explanation of the present situation and of our present groping for priorities.

We should also recognize that our problems here, in the wide view of world fisheries, offer a very special and interesting situation. I suspect that if an FAO fisheries biologist or one from a developing country, say Ghana, were to have sat in on this symposium he would have little sympathy for our problems, and if a Soviet biologist had been here he would have found it hard to understand what our problems were. Happy people whose priorities are not debatable, who know that what they are doing is the right thing, have no problems of the multiple use of resources.

When I think about the situation in the California fisheries it seems to me, at first, that we may have here a glimpse of the future of world fisheries, and my thought is that other people, in other places, may be watching us to see how we resolve our problems. Perhaps in the foreseeable future, the people of western Europe, achieving leisure at the California level, may turn more and more to the sea for recreation, and the time may come in the Soviet Union when the interests of sport fishermen become a valid consideration in planning, which it is not considered to be today.

If others later face the kind of problems we face now, then what we do here becomes a model for the later-comers, and may be very important indeed in the future development of world fisheries. If, with all the varied and sophisticated talent in ocean sciences presently in California, we cannot solve our problems, then later-comers may indeed despair of solving theirs.

But, as was implicit in what the last speaker said, this vision of California fisheries may be totally false. What may very well happen is that the collision course between world population and food production will render the present situation merely ephemeral. The largest single-species catch in the world, the Peruvian anchovy, does not go to feed the hungry peoples of the world, as we all know, but to feed hungry chickens in Holland and California; if this economically sensible but morally indefensible situation ever changed, as it well might when hunger becomes acute enough to stir the conscience of the world, then I suspect that we may need to turn to our own an-

chovy resource to feed our chickens. More immediately, any upset in the present price structure of the world fish meal trade could almost overnight put us in the position of being able to make a handsome rather than a meager profit from California anchovy reduction plants—and who can doubt then that institutional problems would dissolve equally rapidly and we would have new “Cannery Rows” as fast as they could be built.

In this complex situation, it is imperative that the main body of the scientific community—fishery biologists, oceanographers, economists, sociologists, and so on—maintain a sufficient distance from the controversies of the day to retain complete objectivity in their research. On the other hand, some of us must certainly become involved in planning and in discussions about the application of our data to the pres-

ent problems, and we must be as deeply involved in both camps—scientific and planning—as we are able.

Without this degree of involvement on the part of some of the scientists, in the broad sense, with the problems of the day, and with the deliberations of the planners, and with the politics of the State of California, our scientific effort may be wasted and the community at large badly served. I cannot sum up this situation better than by quoting from the writings of a gentleman from the other side of the fence, whose succinct style comes perhaps from his long experience in reaching a very large audience: “If we have a correct theory but merely expound it, pigeon-hole it, and do not put it into practice, then that theory, however good, is of no significance.”—Mao Tse-tung, Quotations: No. 307.

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