12670 Ventura Blvd.,
North Hollywood, Calif.,
May 3rd, 1954.

Mr George J. Christo, Secretary,
San Francisco Sardine Association,
San Francisco, California.

Dear Mr Chistro: -

I read with interest in the May issue of Pacific Fisherman your article on "What has happened to the California sardine?"

While never connected with the sardine fishery, I have spent a life time with the salmon canning industry and made a study of the various phases of the life history and pro and con development of our salmon resources. My experiences with the "expert authorities" on salmon problems largely coincide with yours in the sardine situation.

In both industries these authorities ascribe the major role in the so-called depletion, to overfishing and appear to studiously ignore almost all other factors. They dismiss as inadmissable the viewpoint of those whose opinions differ from theirs and persist in this attitude even when actual happenings contradict their own assertions.

Recently I submitted to the University of Washington Press a manuscript dealing with the history and development of the Pacific Salmon Fishery from the inception of salmon canning in the 1860's and what my experiences suggested could or should be done to perpetuate the industry. The Director of the University Press approved of the manuscript and wished to publish it but the "expert adviers" only concurred that the historical part would be worth acceptance if I consented to delete the opinions expressed concerning the past causes of decline and what might be done to overcome them in the future. They based their decision on the fact that I was not a fish biologist but later, in personal conversation, one of these "experts" denied this was the real reason. He stated their opposition was because my viewpoint did not agree with theirs.

Apparently any opinions that challenged their conclusions should not be permitted publication! Since the date of this interview, many of the opposing points I made or suggested have been proved true by subsequent events and/or agreed to by some of these very critics.

I dwelt on my experience with these "expert" salmon critics because you appear to have a similar encounter with Mr Richard Croker and his associates. They, like their counterparts in the salmon industry, ascribe all decline in production to over fishing and apparently their only dependable means of restoring the sardine supply is to limit fishing exploitations even to an extent that would destroy the industry entirely.

My contention has been, and still is, that the overfishing bogey is a minor factor and that the fluctuations in supply must and can be traced to other causes, most of which lie in the realm of Nature. as regards the sardine industry, fishing has been engaged in on a commercial scale for a longer period than that of any other of our fishery resources. Compared to its exploitation of less than fifty years in California, there is a record of over one thousand years in the North Sea area. Some will claim there can be no comparison between the exploitation extent of the two fisheries named, but I content there should be more evidence of depletion from a millennium of fishing effort than would be encountered in a more intensive onslaught of less than five decades.

About seventy-five years ago, the then Bureau of Fisheries, Washington, D. C., published an article concerning the herring fishery of Norway, in which it was stated that records were extant covering one thousand years of this fishery. These records noted as a peculiarity of the herring movements that the fish were found in abundance for a time in certain waters along the coast of Norway, and then would unaccountably disappear, only to suddenly reappear again after an average absence of approximately forty years. Large shoals of herring would make an appearance in the neighbourhood of Bergen and the take of fish would be great for a considerable time. Then the Bergen fishery would decline while northward along the coast as far as the Lefoden Islands, the heavy herring runs would progressively increase and decrease. After the Lefoden Islands period passed, the Bergen fishery would once more make its appearance without any evidence of its migratory journeys from its most northerly habitat to the southern one.

It occurs to me that some such experience may account for the fluctuations in our California sardine fisheries. I do not believe in the over fishing theory. I think changes in the spawning areas, pollution of the waters, tidal or climatic natural causes, or some other unexplored condition in California

waters have caused a temporary migration, which, as in Norwegian waters, will eventually be restored in full strength and abundance. Or, if this should not prove the case, then I believe the explanation may be found in some natural phenomenon such as the Swedish oceanographer, Otto Pettersson, discussed in his"Climatic Variations in Historic and Prehistoric Times".

Seven centuries ago, the Baltic Sea enjoyed an enormous herring fishery; then suddenly the fishery ceased and has never reappeared. The "expert authorities" of then and today probably would ascribe this disappearance to over fishing, but outside the Baltic gateway herring were and are, found as plentiful as ever, despite seven hundred additional years of intensive fishing efforts. I feel sure the logical explanation of why herring totally disappear from the east side of the Kattegat while steadily retaining their original abundance westward of that short and narrow strait, lies in some caprice of Nature and over fishing was not even a minor factor in its cessation within the Baltic sea area.

To take an analogous case nearer home. Seventy years ago Burrard Inlet, where the city of Vancouver, B. C. now stands, annually enjoyed an extensive herring fishery while an equally large shoal yearly frequented the Point Grey area, immediately adjacent to the narrow entrance to the inlet itself. Herring ceased to visit the inner waters many years ago while the Point Grey fishery enjoys as great an abundance as of yore. The pollution wastes of a great city may have fouled the inlet waters, denuding the surrounding lands of its timber coverage may have destroyed herring spawning areas, or a thousand and one other natural causes may account for their disappearance, but the fact remains that in a waterway less than five miles in length which herring frequented less than a century ago, the inner fishery has vanished while the outer one still flourishes in full force.

It seems to me very likely the Norwegian experience is more likely to happen here than what happened in the Baltic Sea Area. In the latter, as in Burrard Inlet, the entrance gateway is short and narrow, the currents strong, and unusual catastrophic occurences might upset the passage of fish to an extent that would result in total extinction of the run. Other causes would be more probable in the open oceanic waters of the North Sea and the open coastal waters of California. Climatic changes, current alterations, depletions in the food supply of herring and/or the forms on which they feed, any or all, may be contributing factors that result in our sardines temporarily vacating a devestated area for one that better suits their immediate requirements.

I feel that some such experience best accounts for the

present change in status of our California sardine fishery and that eventually the fish will reappear as plentiful as ever. If, in the meantime, our "experts" instead of harping on over fishing will devote as much time and money in efforts to trace where our vanished sardine have migrated, they may keep our sardine canning industry alive and prove the over fishing theory can be "more honoured in the breach than in the observance".

Yours faithfully,