

DISCUSSION

Fisheries Policy Session

Discussion Leader: CARL J. SINDERMANN
Discussion Panel: RICHARD G. BADER, DAN FERAY,
R. WOODMAN HARRIS, OSCAR M. LONGNECKER, JR.

Report on Legislation Pending in Congress Affecting Fish and Shellfish

CHARLES E. JACKSON

- Q. Richard G. Bader: You mentioned that there would be one billion dollars for fighting pollution. The only way that such an expenditure can be used in a reasonably efficient manner is through the coordinated teamwork of federal, state, county and city governments along with private organizations, research corporations and industry. The problem we have is that big. Are these funds to be used for engineering studies, or are there going to be research studies?
- A. Charles E. Jackson: I can't answer that. My information came from the *Washington Post* which expressed surprise that the Senate approved a billion dollars in expenditures. The Administration had recommended less.

- Harold Berkson: I'm with the Federal Water Pollution Control Administration (F.W.P.C.A.) in Washington. This money is not for a variety of purposes. It is for construction. I don't know whether this billion dollars will be used to reimburse states and municipalities for construction, or whether it will be used in terms of a long-term bond guarantee.
- Q. Oscar M. Longnecker: What will be the ultimate action of Congress on the various seafood inspection bills and how soon?
- A. Jackson: I feel that inspection as a consumer issue is political. There are more consumers than there are fishermen and fish people. This subject is popular in Congress and with the President. The debate will come around to the fact that there are inspection laws for poultry and meat so why should fish be excluded. I don't think anything is going to happen soon, but as we get toward election time next November, I believe some kind of inspection legislation will be enacted.
- Q. R. Woodman Harris: You mentioned that one of the provisions in Congressman Lennon's bill was to develop better harvesting techniques for commercial fishing. Are you aware of any proposals in that bill for a specific improvement in harvesting techniques in any fishery?
- A. Jackson: Yes, it is one of the items specifically listed. The bill would require study and consideration of many other things, but at least they recognize harvesting for the first time.
- Q. Carl J. Sindermann: Various groups have been included or excluded from the eventual composition of the new oceanographic agency. Will there be any surprises in the composition of the agency that emerges from this bill?
- A. Jackson: I understand that committee members have decided that there must be one agency which crosses eight or ten federal agencies.
- Steele Culbertson: In your remarks about H.R. 4813, you didn't mention the new broad provision that would allow up to 35% of the costs for remodeling, reconditioning and reconversion of existing fishing boats. It was our National Fishmeal and Oil Association that proposed that provision. It will be most helpful to our segment of the industry and we think to the other segments.
- Q. Robert E. Eisenbud: What is the place of products from aquaculture in the seafood inspection program? Are they included as seafood in the proposed law?
- A. Jackson: The program would include all fisheries that are being utilized at the present time. If new products come in, it would cover them I'm sure.

***Pollution Control in the Coast Guard—
Present and Near Future***

COMMANDER WILLIAM E. LEHR

- Q. Harris: Some weeks ago I read an article in the *Oceanography Newsletter* referring to the development in Vancouver of

something called a slick-licker. It is supposedly a conveyerized device which removes oil slicks directly from the water surface. What specifically is going on in your R & D program by way of hardware development to remove oil from the water surface?

A. Commander
Lehr:

The slick-licker is a harbor device. Unfortunately, most of the things that exist today don't work very effectively, if at all, in areas where there is more than a 6-inch ripple. These devices are very small in size, and don't have the capacity to hold a major spill, even if they could pick it up. I didn't have time to point out the coordination that is going on between the various federal agencies to solve the oil clean-up problem. We have tried to coordinate our efforts so that we do not duplicate each other's work through agencies such as the National Agency Committee for Oil and Hazardous Material and Pollution Control.

Under our normal agreement, the Coast Guard has accepted the responsibility to develop clean-up and control equipment for the coastal high seas area. F.W.P.C.A. has taken the lead in harbors, estuarine areas and rivers.

Q. Harris:

Is there any specific piece of hardware in view that will work in 5-foot seas?

A. Lehr:

It does not exist now. From our design studies, we think we can develop one in 8 or 10 months. Such equipment must be specifically designed to work in high seas.

Q. Dan Feray:

We have historically always had oil seeps at sea. With your remote sensing devices, will you be able to detect natural oil seeps, as well as oil spills, and to distinguish between them?

A. Lehr:

Yes, we will, in that we will be able to detect oil films on the surface. Once we have the remote sensing equipment, we will be able to tell immediately where the natural seeps are. The natural seeps are known, but we don't know how much damage they do, if any.

Our main impetus, at present, is to stop people from dumping their bilges and so on. This is strictly a law enforcement function. As a result, we are trying to develop equipment to solve the problem of the men, pumps, bilges and so forth.

Q. Longnecker:

You mentioned the development of sewage treatment equipment for vessels. Can the cost of such equipment be brought down to the level of smaller vessels like shrimp trawlers and be economically operated?

A. Lehr:

I hope so. We are deeply concerned with bringing the cost down, as the pollution control program for our own ships commits us to spend \$30 million. I can't say that the plan I reported of a 50-man unit will succeed. The tentative standard was set in 1965 or 1966. As an example, in approximate amounts, we expect that this particular 50-man plant will probably cost about \$3 thousand and an additional \$5 to \$8 thousand for installation. We are talking about \$10 thou-

sand. That is a fairly good-sized plant and much larger than needed by the commercial fishing vessel.

Q. Bader:

No matter how we try, we are not going to prevent progress, that is obvious. This means that we are always going to be adding unnatural materials to the natural environment. The problem is not really to stop it, but to control it. You told us about the massive oil and chemical spills as causes of pollution. This Santa Barbara debacle was repulsive and the TORREY CANYON situation was distasteful, but really, it wasn't too disastrous in the long run because these types of events are relatively easily controlled.

The things that bother me are the continuous dribbling of man-made materials into the natural environment. For instance, tetra ethyl lead is found in the ocean in the most distant places from land. DDT is found in the ice in the Antarctic, in the eggs of penguins and of practically every other bird. With respect to these types of dribbling additives, who is responsible to prevent this type of pollution? Even if all of the United States stopped using DDT, this doesn't mean that India will. The solution is not on a national scale; it is on an international scale. Where in the international scene does the control lie?

A. Lehr:

There are two problems here. The massive problems and the massive equipment, but these events happen relatively infrequently. The chronic dribbling, with pollutants that are used every day, is equally important, maybe more important from a technological standpoint. We are trying initially to stop oil pollution because, frankly, it has public relations value. People go swimming and get their feet dirty and this is something they are interested in. The massive spills have provided a service in this regard because they have made the people aware of just how troublesome water pollution is. As to who is going to identify on a local, national and international level, just what a pollutant is and which pollutants should be monitored, I don't know. I do know that last summer Dr. Tarzwell and other people attempted to define the problem of pollutants at a meeting at Jackson Hole. What we have to do in the beginning is to define the problem. We have to find out what pollution is. DDT, as a classic example, was a panacea 20 years ago. Today we know it was a mistake. What we have to do now is find out what we are putting in the atmosphere, which of these things are the most critical, the things that we should do something about immediately. As part of that problem, we have to find where the responsibility lies.

The Coast Guard has a network of buoys that could be converted to remote sensing stations in our own area. Hopefully, such sensors would be located so that we can monitor the whole ocean. F.W.P.C.A. also has a tremendous scientific and technical capability in this area, but all those things must be joined together to achieve the solution.

- Berkson:
(Comment) In answer to your question about who has responsibility, I believe it lies with the state or with the smallest unit from which these pollutants emanate. As I recall the legislation in 1965 and 1966, the primary responsibility for water quality was given to the states. The federal government was given, at best, an adjunct role to oversee this, but the actual enforcement and implementation was a state responsibility. In view of the size and magnitude of the problem it is an error to look to "Big Brother" to solve all of these problems which should be attacked at a local and state level.
- Bader:
(Comment) I am going to have to disagree because I don't see how you are going to prevent the pollution of the natural environment, if you allow it to be in the control of the least common denominator, the city, the county, or the state. As a matter of fact, it really can't be under the complete control of any national government. As I mentioned before, if 50% of the nations of the world stopped using DDT or other chlorinated hydrocarbons and the other 50% of the nations of the world keep on using it, we won't be solving our problem at all.
- Lehr:
(Comment) You said the key word there, the least common denominator. If it cannot be controlled at a local level, it goes to a county, and if not a county, to a state, and if not a state, to a federal government and so on. But the point is, the most effective and the most economical control will be at the lowest level at which it can be handled.
- Q. David
Wallace:
A. Lehr: What do you visualize as the state's role in carrying out its responsibility to control pollution within its waters?
Each state and each municipality must have local regulations to prevent pollution. The Coast Guard's responsibilities are limited by charter to work on navigable waters. This means where there is interstate and international commerce. Such places as a small river or lake in the midwest, upstate New York or possibly here in Florida, are areas beyond our jurisdiction. Local governments must take the lead to stop pollution in such areas.
- Q. Wallace: Just 10 days ago there was a spill of oil from the Hess Oil Company into New York harbor. What happens when the Coast Guard or F.W.P.C.A. discovers this? How do they marshal all of the local forces to deal with this problem?
- A. Lehr: Let me try and explain what I think happened up there. The spill occurred. The first man notified was the Coast Guard Captain of the port. New York has a local contingency plan containing a list of people who must be informed: F.W.P.C.A., local fire departments, various industry stockpilers and suppliers. Also, there is a listing of booms, skimming equipment and cesspool cleaning trucks that are locally available. I'm sure Hess Oil hired local cesspool people to clean up the spill. They might have had their own booms or they might have rented them. During the clean-up the community and federal agencies would only monitor

the spill to see that the job was being done and that it wasn't getting bigger. Under the existing federal laws and proposed federal laws, the responsibility for clean-up is still on the spiller. Only as a last resort if the spiller cannot, or will not, clean up the spill, will the federal agency step in and do the job.

A New Plan of Operation for U.S. Fisheries

WILLIAM M. TERRY

- Q. Sindermann: We have here key people from a number of industries. Has the response to the Bureau's master plan from industry in particular been thoughtful and extensive? Has it been as much as the Bureau might have expected or has it tended to be superficial?
- A. William M. Terry: The response to the idea from outside of the Bureau, from state government, from industry and from the academic community has in some places been very considerable, very thoughtful, very intelligent and very helpful; in other places it has been less so. It is not really clear to me and I think probably not clear to our people whether these responses are related to our own effectiveness in communicating the idea. I suspect this is the case in many places. The task is difficult. The concept is not complex, but it is new. We'll never get as much response as we would like. We will never do as well ourselves as we ought, but it is certainly very encouraging at this point.
- Q. Bader: For a good number of years now, we have been hearing from politicians, bureaucrats, educators, industrialists, scientists, authors and practically everybody else, that an understanding of the oceans is vital to our lives, our livelihoods and our well-being, both nationally and internationally. Over the same years we have viewed the passing of a number of laws. We have watched the comings and goings of committees, conferences, commissions and councils. We have read reports, held hearings and published proceedings, and I have been a part, and you have been a part of writing some of these. We have listened to ideas of government organizations and here we are 5 or maybe 10 years later. It is very simple to read the progress because there hasn't been very much with respect to the standards of the oceans. We have talked about international oceanography on a national level and also before the U.N., yet for some strange reason we cannot find any dollars to support it. My questions is, what do you think it is going to take to get oceanography moving and stop talking about it? What do you feel is the role of the Department of the Interior in oceanographic research and development?
- A. Terry: I suspect it was the same situation 20, 30 or 40 years ago. The same kind of criticism was around and it was true and warranted at the time. What will it take to make progress? We are making progress. We don't make as much as we

would like, partially because it has only been rather recently that the real complexity and breadth of the spectrum of problems, at least that relate to commercial fisheries, have been understood.

When I came into the Fish and Wildlife Service almost 20 years ago, the emphasis, the drive, the dominating thinking, related to fish, not fishermen, related to resource problems and biology; but we know now this is only a small part of the problem. As I said, tough decisions have to be made. Even if we can decide among ourselves, and this is not turning out to be the easiest thing, we still have to face the fact that generally speaking the resources to solve all these problems won't be available. If you add to this the problem of national priorities and how the national budget is to be divided, we shall always need more money.

The second part of the question was what do I envision the role of the Department of the Interior to be. BCF will continue doing what it has been doing, hopefully a lot better than it has been doing it and hopefully doing a lot of other things which need to be done. Naturally, we envision always having a fairly important role in the development and strengthening of the commercial fisheries.

Q. Longnecker: Will there be sufficient coordination between Washington and the field at a local level in the development and the implementation of the master plan? In other words, will implementation be passed down from above or go from the bottom up?

A. Terry: For close to a year now we have had one of our people devoting his full time to insuring good communication within the Bureau at all levels and between the Bureau and the state governments, universities and industry. We recognize that solutions to fishery problems, fishery by fishery, cannot come from Washington. They must come from the locale of the fishery. The format, perhaps the general scheme, received a very considerable input from Washington, of course.

Q. Feray: What is the Bureau's present role in the inventory of estuaries?

A. Terry: I take it you are referring to the studies that are going on now in Interior in pursuance to a statute enacted in the last Congress. The head agency is the Bureau of Sport Fisheries and Wildlife. Both the Bureau of Commercial Fisheries and F.W.P.C.A. have one or two members of this task force who now have a report in the final stages of preparation.

The task force is looking at the problem of the establishment of what might be called a National Estuary System. They have been considering the mechanical, philosophical and political problems involved in acquiring estuarine areas. We obviously have been very much involved because about 65% of the animals that make up commercial fishery pro-

duction spend one or another vital part of their life cycles in the estuaries. If the quality of the estuarine environment goes to pot, the industry goes to pot.

Q. Harris: You mentioned briefly in your talk a regional sample plan. What is it and what are its goals?

A. Terry: It is a master plan in itself, intended to describe in terms which will be understood by all just what the fishery is. It is intended to identify clearly what the fishery's key problems are, and to set some priority of attention. It is intended to display alternative means of getting at these problems to identify those which apparently have the best benefit cost ratio. When I say "benefit cost," I don't mean in simple dollars and cents. I mean the greatest return on whatever effort goes into it. It is intended to convey some indication of optimum cost to legislators, the general public and fishery administrators. In effect it is a package that says, "Here are the things that need to be done in this fishery, here are priorities in which they ought to be undertaken, here are the costs and here are the agencies that seem to be most capable of doing this or that part of the job." That is what we want for each fishery. We have arbitrarily divided fisheries throughout the country into 26 major categories. We hope to achieve general agreement on what needs to be done and the order of priority.

Q. Harris: Can we use the scallop resource in Florida, which has been promoted actively for the last 5 years, as an example? The Bureau has been fully aware that the costs of shucking and eviscerating these scallops are prohibitive to the development of this fishery, but they have not developed the hardware to solve these problems. Yet, the technical capability to answer those problems is there.

A. Terry: If a great deal of the attention hasn't been devoted to looking at the operational problem of the hardware, it can be simply a shortage of money. You do what you have money for, and perhaps the first priority is to look at the extent of the resource.

It would seem to me there is a great difference between merely discovering the existence of calico scallops and going out on the other hand and delineating that resource, its gene distribution and the variations in seasonality over a period of years with sufficient precision to remove the gamble for the fishermen. We may have done this now. Maybe what we should do next is stop this and get on with the hardware decision. The master plan, hopefully, will make this and similar decisions easier for us.

***The National Sea Grant Program—
A Progress Report for Fisheries***

ROBERT B. ABEL

Q. William Neblett: Is the Sea Grant Program concerned mostly with college level education or is there also room in your program for

the very practical fisheries problem, that of finding and training capable fishermen? We feel, particularly in the shrimp fishery, that improvement in the ability and quality of the fisherman might be of considerably more advantage to us than all of these other programs, including subsidies.

A. Robert B. Abel:

Yes, there is, and we deliberately try to emphasize this. We are permitted by our enabling act to fund research and development, education and training and extension services. Under research and development we are permitted to fund natural science and social sciences. Under education and training we can support any level from grammar school through post-doctoral study. We are permitted to support other agencies, public and private, industry and universities. Obviously with a scope that broad and a budget that small, we have to do some pretty hefty refinement. We try to stay within the spectrum of applied research and development. We also avoid muscling in on the mission-oriented agencies on one side, or competing on the other side with the basic research sponsorship of the rest of the national science research. To be consistent with placement of emphasis on applied research, we stress the education and training of engineers and technicians. We also sponsor training in the social sciences such as in the Ocean Law Department of the University of Miami.

We now sponsor training technicians in 15 community colleges encompassing the partial support of curriculum involving over 400 technicians. These include the training of students for any of the broad fields of oceanography or those working to update in all fields. It also applies to refined areas, such as fisheries, in about four schools.

Q. Culbertson:

We read a great deal about the population explosion and the food requirements needed to feed the United States and other countries. Officials in the Department of Agriculture and the farm industry state very assertively that the agricultural capabilities of our country are sufficient to feed or furnish all food requirements.

Weigh this against the declining production of the fishermen of the United States. We must get more emphasis on the ocean and the ability to use it to feed the projected expanding population. How are we going to be able to use the Sea Grant program to reverse this downward trend of productivity in fisheries?

A. Abel:

The area of food from the sea is one where we tread lightly because, after all, the Bureau of Commercial Fisheries is in many respects our big brother. We work with them constantly, but our sphere of activities lies in aquaculture, in the social science aspects of food resource development such as economics, law and extension services.

Probably no one in the audience here today knows less about the technology of fisheries than I do. But in traveling around, I have collected some data. If I understand correctly,

there is an unfortunate paradox in the philosophy of producing a satisfactory food to save the world. The major conventional food stocks which will feed large populations are not those that are on the American market. For example, in the United States, the demand exceeds the supply mostly for shellfish. Finfish such as cod and haddock don't really bring a financial satisfaction in the marketplace of the United States, and these are the fish that are caught in great numbers internationally.

Sea Grant expects to support aquaculture. I hope we don't run out wide-eyed and claim that we will be able to bring aquaculture to the marketplace as a financial reality in the foreseeable future. Incidentally, the one thing that really terrifies me is the number of people who have read in *Life* or *Fortune* or some other place that a lobster lays so many hundred thousand eggs. They take a vacation where they see a harbor that is relatively untouched and come back and write in and say, "We have an idea that is going to save the Sea Grant Program. We are going to raise lobster for you and save the country." It is almost an impossibility to try to get across to these people the fantastic intricacies of lobster larvae development.

Mitchell:
(Comment)

There are going to be a number of young men available to our labor market soon who are accustomed to crash training programs and rigorous physical activity. They are of the right age. Many of them are unmarried and won't mind going to sea on supply boats, shrimp boats or some other type of vessel. I would submit that consideration be given to starting some kind of recruitment program for them.

Abel:
(Comment)

This is something we have been dealing with, not connected directly with Sea Grant. For instance, Vice President Humphrey in his term had set up a committee to locate all sorts of opportunities in marine science.

This also is subject to wide misinterpretation. For example, a gentleman wandered in my office a few months ago who had a client for whom he wanted support for the purpose of crash-training 5,000 kids a year from Manhattan and Brooklyn as seagoing technicians. Now, if there is anything we do know about training programs in this country it is that the worst thing you can do is to train for job opportunities which do not materialize. We are not sure what the relationship of the supply-demand situation is in the ocean. Right now we sponsor 15 schools training technicians and another 15 training engineers. We have turned off the tap. We will have graduated our first class in June, and then we want feedback. Until we know how many of these kids are getting good jobs and are contributing usefully, we don't want to just spread this thing out.

Q. Billy F. Greer:

Would you identify some of the things you are doing with your Sea Grants here in this region, as they pertain directly to fisheries?

A. Abel:

Well, undoubtedly the best known of the local problems is the one that the Institute of Marine Sciences has been running for some time, having to do with aquaculture at the Turkey Point site in Miami. At last year's meeting they described their techniques for rearing shrimp from the larval stage and developing the types of phytoplankton most amenable as a food source. Our Sea Grant Program at the University of Miami is what is known as an institutional grant and it encompasses seven major sub-programs consisting of numerous individual projects, some of which have to do with food.

Elsewhere in Florida, we sponsor a training program at Florida Atlantic and have given a planning grant to Florida State, who are proposing aquaculture projects as well as some economic studies of seafood.

The new director of the National Science Foundation, Dr. McElroy, wants the Sea Grant Program to undertake some of the rather high-risk categories of science, to use completely fresh approaches. His example of how you would use food from the sea in an unusual way is this: he asks the question, if an oyster can filter about 100 liters of water a day, then by taking one of the worst dehumanized aquatic areas in the country, the Chesapeake Bay, how many oysters on how many strings would it take to filter all the water in Chesapeake Bay and clean it up?

Of course, he is an engineer, because you have to allow for the automatic displacement of the hero oyster who was sitting closest to the sewer pipe, as he dies, everybody has to move up one.

Q. Wallace:

You said that you had a number of Sea Grant Programs with various universities and private industrial corporations. Are there any Sea Grant Programs with states?

A. Abel:

A program which we are looking at right now involves the entire state of North Carolina. This came about through Governor Moore's personal influence. He asked the entire state to unite as a sort of a Sea Grant deed. I put together a consortium of the universities, including Duke, University of North Carolina and North Carolina State. Then he formed the Industrial Advisory Council for two reasons: to give industrial input as the ultimate consumer of the Sea Grant products and services and secondly, to be able to participate directly with the universities. Their proposal is on the way and it will be another precedent-setter. I'd like to report on that next year.