

35th Annual Report of the

**PACIFIC MARINE
FISHERIES COMMISSION**

FOR THE YEAR 1982

**TO THE CONGRESS OF THE UNITED STATES AND TO THE
GOVERNORS AND LEGISLATURES OF WASHINGTON,
OREGON, CALIFORNIA, IDAHO, AND ALASKA**

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of the*
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FISHERIES COMMISSION**

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To the congress of the United States and the Governors and Legislatures of the Five Compacting States, Washington, Oregon, California, Idaho, and Alaska, by the Commissioners of the Pacific Marine Fisheries Commission in Compliance with the State Enabling Acts Creating the Commission and Public Laws 232; 776; and 315 of the 80th; 87th; and 91st Congresses of the United States Assenting Thereto.

Respectfully submitted,
PACIFIC MARINE FISHERIES COMMISSION

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2nd Vice Chairman	Dr. Ronald O. Skoog, Commissioner, Alaska Dept. Fish & Game
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35th Annual Report—1982

ANNUAL MEETING EVENTS

Summary

The Pacific Marine Fisheries Commission's 35th Annual Meeting was held on November 15-17, 1982 at the Casa Munras Garden Hotel, Monterey, California and presided over by First Vice Chairman Jerry M. Conley, Director, Idaho Department of Fish and Game and Third Vice Chairman Rolland A. Schmitt, Director, Washington Department of Fisheries. Annual Meeting highlights included extensive discussion of 27 Proposals, 21 of which were adopted by the Commission as Resolutions, and a symposium on some marketing aspects of fisheries development. Commission elections were also held.

The text of the presentations by symposium panelists and questions from the audience are presented below. Full texts of the adopted resolutions and actions taken in their behalf begin on p. 12. The results of the elections are included in the Personnel section under Administrative Reports and Actions (p. 24).

Symposium: Fishery Development—Some Marketing Aspects

Six panelists addressed various aspects of fisheries marketing under the following four categories: Preserving Quality, Success Stories, Retail Perspectives, and Industry/Government Interaction. Mr. Joe Easley, Executive Secretary, Oregon Otter Trawl Commission served as panel moderator and Mr. Peter Granger, Executive Director, West Coast Fisheries Development Foundation served as symposium rapporteur. The panel members included: Mr. Robert Price, Extension Seafood Technologist, University of California, Davis; Mr. Pat Flanagan, Standard Seafood Products, San Francisco, California; Mr. Peter Granger, Executive Director, West Coast Fisheries Development Foundation; Mr. Howard Ness, National Marine Fisheries Service, Terminal Island, California; Ms. Stephanie Revesz-Thornton, Pacific Marine Fisheries Commission Commissioner; and Mr. Bary Keene, Pacific Marine Fisheries Commission Commissioner and California State Senator.

Moderator: Joe Easley

Without people to use the fishery resource there wouldn't be much need for fisheries management. Those of you here who are managers will perhaps get a little more insight today into an area you usually don't deal with, but that is a part of the fishery. It is important from a management standpoint that there be market stability or there will be no fishery developments on underutilized species. The panelists will bring a few things to your attention concerning some marketing aspects of fishery development and answer your questions.

PRESERVING QUALITY: ON DECK, DOCK AND AT DISTRIBUTION—RETAIL AND INSTITUTIONAL

Robert Price, Seafood Technologist, University of California at Davis

My subject today is seafood quality. What quality is, how it relates to shelf life, the factors that affect it, and the methods available for maximizing quality or extending shelf life of fish. New technologies currently being developed will also be reviewed. Quality in seafood is defined as acceptability—acceptability to the fisherman, the processor, the distributor, the retail or institutional buyer and finally acceptability to the consumer.

It's important to remember when talking about seafood quality that the person of most concern is the consumer. Quality, as it relates to the consumer, is actually consumer acceptability, which is directly related to shelf life. The goal of the seafood industry should be to provide the consumer with a high quality product with sufficient shelf life to make it highly acceptable. The essential part of meeting this goal is to preserve the quality of the product from harvesting through processing and distribution to the consumer. My remarks are restricted to fresh seafood (primarily fresh fish), but many of them are also very applicable to producing high quality frozen products.

Seafood quality is judged by a variety of criteria: flavor, color, odor, appearance, lack of defects, weight, and size uniformity. Lack of quality is generally assessed by discoloration, off-odors, and off-flavor. These three poor quality criteria result from a series of reactions. Naturally occurring enzymes are present in the gut of the fish and in the flesh itself. Oxidation of the product results in discoloration and rancidity, and, most important, in the growth of bacteria either in or on the product. Bacterial growth is the primary cause of quality loss in fresh fish, and this bacterial growth is directly related to storage temperature or temperature of the fish. By compiling data from about six different studies on the shelf life of white fleshed lean fish the edible shelf life at different temperatures has been determined to be as follows:

Temperature	Edible Shelf Life
90°F	1 day
32°F	2 weeks
29°F	3-4 weeks

A general rule of thumb is that shelf life is cut in half for every 10 degrees Fahrenheit rise in temperature beginning at a temperature of 32°F. Using this data in the real world to determine how long fishery products remain acceptable to the consumer is a little more complex. These projections of shelf life at various temperatures assume that the fish are held at these constant temperatures throughout the distributional chain.

Fluctuations in temperature do shorten shelf life. For example, the 14-day shelf life of fish stored in ice (32°F) would be reduced to about 12-13 days with fluctuations above 32°F. Another problem is that shelf life information in the literature rarely says anything about quality of the fish. In actuality fish stored at

32°F is gradually decreasing in quality each day up to day 15 when it is no longer edible. Experience has shown that the high quality shelf life of fresh seafood is approximately 60% of the edible shelf life. Thus fish stored at 32°F has a high quality shelf life of about eight or nine days. In practice what we want to provide is a high quality product to the consumer, so we're talking about storage times at the various temperatures of about 60% of the shelf life, and this is assuming the product has been kept at these constant temperatures in the distributional chain.

There are four basic options for maximizing high quality shelf life and insuring that the consumer receives a high quality product. These include: limiting the time the fish is held throughout the different distributional steps, improved temperature storage techniques, use of preservatives or improved packaging techniques, and a combination of the above three. These options all assume that the fish are handled properly and rapidly throughout the distributional chain. The use of fish pews on the vessels should be discouraged as they can damage the fillet. A fish that has been hit in the fillet by a pew will have increased bacterial growth in the area where the flesh was pierced, causing a dark spot which results in an undesirable appearance in the market. Rapid gutting and bleeding on the vessel greatly improves the quality of the final product. This is not always feasible, but should be done where it can be. Rapid cooling on the vessel is also very important. The faster the fish are chilled, the faster bacterial growth is slowed. Proper icing, shelving in the hold or box storage are also necessary to maintain quality. An alternative to ice is a chilled sea water system for short term storage. Chilled sea water systems cool the fish more rapidly and reduce compression and crushing of the catch. However, extended storage in chilled sea water is detrimental because of problems with rancidity, salt-build up and water uptake. Herring will last about two days, dressed salmon four days and a round, cleaned fish about seven days in chilled sea water.

Proper sanitation, both on the vessel and in the processing plant is very important to maximize shelf life. Cleaning and sanitizing agents are necessary along with minimizing the use of wood in construction for both vessels and processing plants. Wood is an excellent substrate for bacterial growth and is impossible to clean completely. Rapid handling and packing at the processing plant along with good temperature control is a great benefit to product quality. Fillets that are rinsed in clean water before packaging will have from 99 to 99.9% of the bacteria removed.

Maintaining good temperature control during distribution is also important. Products should not be stored out on loading docks or transported in unrefrigerated trucks. Proper temperature control at the retail outlet along with proper stock rotation so that the older product sells first is the final step in maintaining product quality. The New England laboratory of the National Marine Fisheries Service recommends that fish stored at 32°F be restricted to a maximum of two days on the vessel, one day in the processing plant, five days at the retail outlet and one day at home. Although these times may seem somewhat impractical, fish held for more than nine days at 32°F will simply not be a quality product. Fish held on the vessel at 32°F more than two days should not be put into a distributional chain that will require an additional five to six days to get to the consumer. The alternatives are to distribute the product to fast turnover speciality shops, restaurants, or to freeze the product.

There are other options to holding the fish on ice (32°F) on the vessel and throughout the distributional chain. The first

option is to hold the fish at a lower temperature. At 32°F the shelf life is about two weeks. If the temperature is dropped to 29°F, the shelf life is increased to three to four weeks. The rate of growth of bacteria between 29°F and 32°F is very different. This option requires excellent sanitation, rapid cooling and very accurate temperature control in the 29-30 degree range. Fish will not start freezing until the temperature is lowered to about 26 or 27 degrees Fahrenheit. At 29°F the fish is still a fresh product. This type of temperature control on the vessels probably means using systems such as refrigerated sea water, which have accurate temperature controls. At the processing plant, the temperature in the packing room should be in the 40-50 degree range with storage at the plant and throughout the distributional chain at 29°F. Although this option for extending shelf life is a simple one, it may not be very practical or feasible. However, it is possible to use temperatures of 29-30 degrees at selected points in the distribution chain and thus gain some extension of the shelf life.

Another option available is to use either preservatives or improved packaging techniques, such as modified atmosphere storage. The most effective preservative available for seafood is potassium sorbate. It is very effective in extending shelf life by means of inhibiting the growth of bacteria. In particular, it inhibits the growth of selected groups of bacteria which produce the normal spoilage odors that we associate with fish. Potassium sorbate is incorporated into the ice used to cool the fish at a level of about 0.5 to 1.0 percent and into refrigerated sea water at a level of about 0.2 percent. The processing plant then applies a solution of 2.5 to 5.0 percent potassium sorbate by spraying it over the fillets after the final rinse. A mixture of sodium phosphate, citric acid and potassium sorbate may also be used as a preservative. Both of these preservative sprays are very effective in extending shelf life of the fishery product.

Another option is modified atmosphere packaging. This technique has been shown to extend the shelf life of packaged seafood products. It is effective and also safe both for bulk packaging and packaging for the retail outlet if proper temperature control is used. As an example, rockfish packaged in a mixture of 80% carbon dioxide and 20% air and stored at 34°F for 13 days could not be distinguished from fresh rockfish by trained tasting panels. In this case, modified atmosphere packaging extended the shelf life at least 50%. Prepackaging using modified atmosphere also has the advantages of preventing past processing contamination and allows the processor to label his product and thereby become identified with his product and its quality.

The use of both preservatives and modified atmosphere packaging are proven methods of extending high quality shelf life. However, they must be used with very fresh fish. Neither method will work very effectively if the initial bacteria levels on the fish is high or if the fish is not very fresh.

In summary, the only time where fresh seafood quality counts is when it is consumed. At all other times in the distribution chain, quality is important only as it relates to shelf life. The technologies are available today to produce fresh fish with a high quality shelf life of two to three weeks or longer, using combinations of the methods discussed. These technologies were developed to improve the quality of fresh fish available to the consumer, not to extend the length of fishing trips. The use of these methods can produce better products, improve consumer acceptance of fresh fish, and expand the fresh seafood market in the United States.

SUCCESS STORIES: SQUID, SHARK AND OTHER PRODUCTS

Pat Flanagan, Standard Seafood Products, San Francisco, California

My subject is underutilized species, specifically squid and shark. I shall concentrate on squid, but my discussion also applies to shark just as well. Squid—what does that conjure up in our minds, or the mind of the American housewife? It may bring to mind thoughts that are not very pleasant. Many people, even if they were chocolate coated, still would not eat squid.

In the past squid was an underutilized species in California and in the rest of the United States, both in marketing and in production. When discussing success, one fact in business must be kept in mind—if a product cannot be marketed successfully, it will never be produced successfully. Salesmanship is the real name of the game.

We now think of squid by the Spanish and Italian name of Calamari. This name is now accepted in the market and we have really accomplished changing the concept and image of squid. Shark sales have also come to the forefront in the last few years. Restaurants are no longer afraid to market shark as shark. The public is realizing that shark is just as good as swordfish. Americans are beginning to eat squid and shark in large quantities for the first time in our history. This is a phenomenon which has largely occurred, especially with squid, in the last five years.

One of our companies has produced squid for almost 20 years under the "Quality" brand. During this period, the most we produced was about half a million pounds a year which was sold in the local California market. A large portion of the production went to the fresh market, being sold within 24 hours after unloading. Most of the product was consumed in the beginning by certain ethnic groups, such as Italians and Orientals, both of which are extremely quality conscious.

There are a few things which must be remembered in the production of squid. Some of these were addressed by the previous speaker. The first one is bacteria count. Squid are scavengers and as such retain higher levels of bacteria than predators because of the type of food they eat. Consequently, once killed, their spoilage rate is higher than predator species. In order to maintain acceptable levels of bacteria the product must be handled with more care and attention. It is preferable that squid in a fresh state be heavily iced and ideally they should be immediately frozen to bring the growth of bacteria to a dead stop.

The second item is water content. All seafoods vary to some degree in the composition of protein and water. This is extremely important when dealing with squid. Fresh squid has a rubbery texture, similar to abalone, and retains this quality sometimes even when cooked. One of the effects of freezing is the removal of some of the moisture from the product. The other effect is an actual breakdown of the texture. By freezing, the texture is modified, tenderizing the squid and making it more palatable.

The third item is carton design and preservation procedures. This is extremely important in production. Our company discovered that by utilizing a high wax-content fiber, we gained greater protection. Also by using a one-piece carton, coated with wax, we could literally encase the product in water once frozen, creating one of the best glazes possible to protect against further unwanted dehydration and loss of flavor. These cartons are substantially higher in price but protect the product as much as possible. We can now maintain our product up to five

years with little deterioration of product quality through dehydration, and have in actuality, maintained it for two years before sale with no complaints.

From here, we must concern ourselves with the master carton. Again, we use a higher grade carton than most use. Four years ago our company had to negotiate in Caracas with a Venezuelan firm over their claim of poor quality squid which we had shipped them. We were in a place called Punto Fijo, which seemed to be the real end of the earth. We had to drive for a whole day through desert to get there. We had shipped 40 containers of squid by ship in Punto Fijo. One of the complaints was the master cartons. Upon examination of the product in their freezer, I had to admit fifty percent of the cartons were broken. After analyzing the problem, we discovered that each of these cartons had been handled, or thrown, by at least 15 different truck drivers or longshoremen, just to get to the final distributor. From there, they would be handled at least another five or six times before finally reaching the consumer. These people aren't going to treat any cases like a baby, and in fact, I believe that they hate to move boxes. All of their pent-up frustration is no doubt released on these cases. Stapling and strapping was not good enough. Good geometric box design for even stacking and integral strength is extremely important. After returning from Venezuela, we improved our cartons even further by purchasing an automatic strapping machine to band crossways thereby gaining more strength. We have not had a problem since.

The fourth item is coldness and weight loss. Previously, we have discussed the relationship of cold to bacterial counts. Another problem we faced was coldness and how it sucks out the moisture. Moisture is weight; water loss from a product can be very expensive. In order to reduce this problem, quick freezing is critical. Today all of our squid are totally frozen within 24 hours after being caught. We use ammonia blast freezers, approaching a minus 45 degrees, not counting chill factors. Cold storage is maintained at a minus ten degrees, or lower, with a still air environment, and that's very important—still air. A lot of plants today are being built with moving air and it is a mistake. The owners do not realize how much that costs them in the long run.

Weight loss has been one of the largest complaints on exported American squid, especially from Spain. This is a major impediment to world-wide acceptance of American squid. Again, it was part of the major problem which necessitated our trip to Venezuela. We were inconsistent in weights and often short of the five pounds net weight when thawed. Since then, we've instituted a policy of over-pack. All net weight cartons of squid, when packed, are packed 5¼ pounds. As a result, even with dehydration, after a year, full thawed weight usually is 5 pounds or more. Well, enough of production. The point of all this is that fish production is complicated and a lot can go wrong. Problems can result when no one expects them. We learned a lot about squid and how to produce one of the highest quality squid products in the United States. And there is still a lot more that has to be done.

Naturally, after the product is packed it must be sold. That's what we're all here for—profits and money. About seven years ago, it was decided that production must be increased from 500,000 to 5,000,000 pounds, or more, per year. It took two years of planning to gear up for the tremendous distortions we knew would occur. About a quarter of a million dollars was expended on machinery development for new blast freezing capacity and also in the development of one of the first hydraulic conveyor belt systems in the fishing industry. With hydraulics

rather than mechanics, we can vary belt speed and production, reduce down time due to breakdowns, and increase the safety of our employees. This conveyor line has not broken down once in five years of production. Also, a main frame computer was installed to handle the tremendous surge of payroll, as squid is a high labor-intensive product. All of our squid are hand-packed in layers, rather than thrown into the cartons, again to insure good glazing.

The computer has also been linked with daily production and random size samplings of each day's product, allowing accurate grading by size. This allows us to accumulate some interesting statistics on sizing per year-class of squid caught, as well as allowing us to offer to our customers the exact size of squid which they wish—small for rings, large for stuffing and steaking.

Five years ago, we went full speed into production. In one year, we went from 500,000 pounds to 5,000,000 pounds, a 900% increase. Not to mention the tremendous production problems we incurred, all of a sudden we realized we had no market. At this time, 90% of all squid produced on the West Coast was being exported. Because we had concentrated in local consumption, while our competition had entrenched in exports, we were at a distinct disadvantage. No one knew who we were overseas. You can have the best product available, but product recognition and acceptance are the keys. We did not have this; we made a critical mistake. We assumed that high quality will always sell—it does not. It has to be sold and it has to be marketed.

The luck of the Irish bailed us out. At this time, the oil shortage had created a boom in South America and predominately in Venezuela. Everybody who had produced food there was now into drilling for oil. No one was producing food. Through my wife, a Polish Argentine, we began to look for new markets to penetrate. With the use of her Spanish, we were the first California producer to take advantage of a brand-new developing market. They needed squid, our dollar was weak, and they had the money. As a result, for two years, our company established a monopoly with Avencasa in Venezuela, over the entire South American continent, using that organization to distribute our squid to Argentina, Colombia, Brazil and others. The third year, our competition found out and they then tried to penetrate the market that we had established.

When competition calls, the men are separated from the boys. All of a sudden, our prices were too high, our product was short on weight, cases were broken, plus all of the other excuses which can be used in negotiating a lower price. We stood to lose \$60,000 just because we were suddenly over-priced and were actively being threatened by the competition's price cutting. This necessitated the trip to Caracas and Punto Fijo for negotiations. After two weeks of heavy brain-storming with the Italian owners, we developed a program of reducing our loss to \$20,000, made a commitment to improve our quality by over-pack, box strapping, and computerized size grading. All of these approaches would justify a higher price in the future and present our product with an image of being a cut above other producers. With our \$20,000 in price reduction, Avencasa agreed to also absorb a similar \$20,000, along with our exporter, making up the balance of the needed \$60,000. With this approach, we jointly financed a temporary discount promotion program which eventually bankrupted Avencasa's main competitor.

The reverberations were felt all through the distribution line into the United States, even before we got back. We had not only reduced our losses, but reestablished our control of the market.

How could we have been so successful? I can partially attribute it to my wife, acting as translator and being introduced as Vice-President. This gave us the edge in instilling anxiety and thereby winning the negotiations. Yet we all gained with increased future business. Another factor, we spoke Spanish continually, rather than English, showing respect for their culture. This is something the Americans should learn from the Japanese as world-wide traders. As a digression here, our company is now developing a new second brand name for squid, which will aim toward the Spanish speaking market, facing up to the fact that in the United States soon, more people will be speaking Spanish in this country than English.

But the problems of marketing were not over yet. Realistically, we had to believe in the strength of the United States currency. Ninety percent of our production was for export, and the balance was for domestic markets. Common sense tells one this is not a healthy situation at all, and lack of diversification in fish marketing or production can lead to bankruptcy, as can be seen in the automobile industry and steel. We knew we had to generate and strive for a domestic market. The ideal goal was a 50-50 percentage, so that we could hedge all bets, no matter whether the dollar was weak or strong. How could we expand the domestic market in squid? We had to intrigue the American housewife to eat squid. We've already talked about the importance of a name like Calamari. This helped to some degree, but not totally.

Again, the luck of the Irish plays a part: a few years ago a man, named Isaac Cronin, walked into my office. If you have ever met Isaac, you would appreciate what a genius he is, especially to our industry. He reminds me of the old beatnik days of North Beach and of the flower children of Haight Street. He is a typical Bohemian. And he is a fantastic writer who combines words with dedication, especially toward seafood. Isaac wrote a screen play for "Chan is Missing," one of the most successful underground movies, and like a typical Bohemian, took \$500 in cash and ran, rather than a percentage of the movie, which today is worth over \$100,000. What makes Isaac even more unique is that he was a fisherman and specifically, a squid fisherman, and he and his wife are excellent cooks.

Isaac wanted, a couple of years ago, to help in writing a cookbook on squid. To make a long story short, only two companies, really helped Isaac—Ocean Garden Products, which is part of the Mexican government, and our Standard Seafood Products; both of which were mentioned in the dedication of the book. I am really proud of it. He struggled for a year and finally published what is now the hottest cookbook on the West Coast, *The International Squid Cookbook*. What makes this book different from any other cookbook written about seafood, is the amount of background about squid—how it is fished, its tremendous nutritional value, and how it is the healthiest food we know of today, including bean curd. It is high in protein and low in fats. The book also goes into the names for squid, how it is used, how to clean it and much more, including a fantastic fairy tale about squid. People have literally flunked their mid-terms in school because rather than studying, they were captured by this book. In any event, over 30,000 copies have now been sold in the Western United States.

Normally, there is a very simple application of how to cook squid, but Isaac's is the best. It has all of the small hints which every gourmet cook and beginner loves in order to insure a successful end product. Our company is so committed to Isaac's book that we buy it direct from the publisher for \$4.00, sell to the retailers for \$4.50 and they in turn sell it for \$6.95. All of us

are making money out of the book, and promoting squid very effectively at no cost. The result is evident. Markets have begun to sell squid today in larger quantities than every before. When the book is introduced into the market, squid sales go up 20 to 40% and do not drop. A restaurant has now opened which serves exclusively squid, based on all of Isaac's recipes. It is considering a national franchise because of its tremendous success. The restaurant is surprisingly called "Squids." I would say that we have come a long way.

Isaac hasn't stopped there. He is one of the strong supporters for the Santa Cruz Squid Festival and the Watsonville Garlic Festival. This affair grows larger each year, and there is talk of moving it eventually to Monterey. Our company has now inserted promotions for this book into all of our packaging; we get a fee for any books sold through this medium. There is no doubt that if we are to distribute squid on a 50% export to 50% domestic ratio, credit goes to this fantastic writer. His contribution to the seafood industry is an example of what private individuals can accomplish. I might add, Isaac did not get one cent from anyone in promoting this book and he has traveled all over the country to speak and give demonstrations in bookstores. He is now working on a new cookbook for Pacific Coast fish, with pictures designed by one of the best artists of seafood in the country. I believe she is from Scripps Institute. Today, all of our cartons contain some of Isaac's recipes as well as instructions on how to clean squid. Consumer education is of critical importance in marketing.

Well, Isaac is not all there is to marketing. I would not be telling the truth, if I said it was that easy. We do have a fantastic asset going for us in marketing that is inherent in all of our underutilized species—price. Squid is still very cheap. Boats this year were paid 12½¢ a pound, and still made good money, even though it was a poor year. The product was still sold in volume this year for 28¢ a pound to distributors, and it still maintained its export value (while not at the peak level of two years ago) despite a strengthening of the dollar. This is not something which can be said this year for many other types of American seafood, especially on the export market. Why is squid successful in the world markets? Because even despite high U.S. labor costs compared to foreign labor costs, the U.S. product can still be priced competitively, and quality can be maintained which is so important overseas. I am pleased to say that this year, we will have reached our goal for a 50-50 ratio of exports and domestic consumption. Even in a recession, squid is responsible for continued profits and capital stability of our company.

Yet the marketing problems are still there. This year, production in Mexico and California will hit a 12-year low. As we depend on Mother Nature, and she sure is fickle, right when we are at the point of developing a viable market, we are in danger of not being able to maintain continuity of supply. Whether again by Irish luck or perhaps by a real discovery, our company by computer analysis of past data predicted a poor production year, prior to the season. Statistics compiled on production over the last three years, when correlated with historical production figures from the California Department of Fish and Game, indicated to some degree that assumptions made on the sex life of the squid perhaps are not correct and that in fact, squid fishing in Monterey might be presently at optimum yield. Realizing this early in the season, and the inherent danger of running out of product, and what destruction this can cause to the marketing effort, we purposely restricted sales on a ration basis and slowly raised prices. As a result, we will be able to supply our custom-

ers throughout the year, applying the laws of supply and demand in as soft a manner as possible so as to prepare for next year, which we predict will be back to higher than average production.

The situation is not bleak, however. Thanks to the biologists, we know that stocks are available in other areas—virgin stocks. Presently, we are trying to develop production capability for these stocks. The problems are massive—lack of education on the part of the fishermen in production, lack of coordination between different types of gear with the experience of the fishermen, need for new fishing approaches, bacteria problems which are predicted to be massive and perhaps not solvable (at least under present conditions), and sadly to say, the resistance to change and poor infrastructure which exists in the fishing industry.

There is another facet to this story which must also be mentioned, especially since we are dealing with such a cheap product, which is providing many jobs to our immigrant minority population in California. By the way, due to squid production, our work force jumped from 50 to 250 people per year. There is a problem, however, with seasonal products which cause real peaks and valleys in plant utilization. One answer is almost on the horizon—what I call labor/value-added implications to the raw product itself. Again, we see the close coordination of product and marketing and the interrelationships which exist. By this I mean, further processing methods to satisfy segmented markets. Squid is consumed in a number of different versatile ways. The major way is whole, which allows the cook total flexibility in deciding preparation. The other ways are plant processed; steaks, tenderized steaks, tentacles only, and squid rings.

Our company has now developed ways of keeping our labor working on these products twelve months out of the year, solving the seasonal problems. This development has been experimented with on a small basis, insuring quality and learning. We are now on the verge of going into heavy production twelve months of the year for squid. We have developed ways of cleaning squid at the rate of 40 pounds per hour, competing closely, I believe, with the squid cleaning machine which is being developed by the University of California at Davis. Our squid steaks, I might add, when cooked properly, are almost a close cousin to the abalone. Prices of \$1.80 a pound for squid compared to \$24.00 a pound for abalone (wholesale) are definitely a plus. Marketing seems to be very easy, except for one by-product—the tentacles. People who want processed steaks do not want to buy the legs. It's just like pigs. Everybody wants the hams and nobody wants the tail. Yet commercially, everything must be sold.

Within the last week, we have, believe it or not, discovered the proper marketing techniques and preliminary results seem to indicate that we now have a very strong market for just squid tentacles. Another plus is that a recent discovery indicates that squid contains the antidote for nerve gas. It is very possible that soon our industry will be defense-related. This area definitely demands a lot more investigation as to commercial application, as well as in the other areas which we are working on, which are still secret. Again, the first company to develop new markets guarantees the highest level of market penetration.

What does all of this mean in regards to success? Solving production problems on a commercial basis is always challenging and is never the same, depending on volumes and a lot of other variables. It becomes even more difficult because of the need for people involvement and the variables which they repre-

sent. There is no room in production for preconceived ideas, and constant vigilance is necessary to be aware of changing conditions in all the variables. All the variables are inter-related. For example, water currents and temperatures have a tremendous effect and cause changes in production approaches. In fact, each species has its own production problems, solutions and requirements.

Secondly, production can never be separated from marketing. Both are multi-level approaches, totally integrated and demanding a commitment to risk, capital commitment, imagination and the luck of the Irish. Creativity on all levels and awareness are critical.

Third, there is a need for government cooperation with the industry. We must together try to insure continued success in marketing of underutilized species such as squid. We must strive for eventual prediction of yearly production levels to avoid running out of product, which is disastrous to marketing. We must begin to develop an environment which encourages higher quality control in all levels of distribution, and we must also discover how to diversify our production areas without a sacrifice in quality. In short, we need to know a lot more about our squid in our national fish resources.

Success is always envied by others, but success can only come from hard work and the willingness to experiment, to learn, to change and to adapt. This is more important now in the United States than ever before. The success of squid could also be the success of all industry in this country if given the proper incentives and environments. Government's job is to provide the incentives, the knowledge and the environment. Business must then respond to the challenge and gain back this country's position as the leading fishing country of the world.

RETAIL PERSPECTIVE: A CASE HISTORY

Peter Granger, Executive Director, West Coast Fisheries Development Foundation, Portland, Oregon

The Regional Fisheries Development Foundations came into existence a few years ago. The West Coast Fisheries Development Foundation itself has been in existence about two and a half years and if you are not familiar with it, it is a trade association. It has membership from all facets of the fishing industry: the harvesting, processing, distribution, and the retailing facets. We are in the business of trying to insure the timely, but yet careful, development of fisheries resources in the States of Washington, Oregon and California. We look at underutilized fish to a great degree. The Foundation uses Saltonstall-Kennedy monies to finance and administer specific projects on developing fisheries. The Foundation has developed a marketing and promotion capability much in the way any other trade association might do. We have sort of evolved into a mode of helping the industry to promote and market its fish on a generic basis, not only underutilized species, but also what we might call utilized species that need some market enhancement.

Today I am going to tell you just a little bit about a case history. Not a species case history like Pat did, but I am going to tell you about a case history of a promotion arrangement that we made in the City of Denver, Colorado. As an introductory basis to this, the Regional Fisheries Development Foundations (all five of them) have taken on a to a lesser extent marketing and promotion work. We pick cities that we feel fish from our regions have some potential for moving into, have some historic basis for, and

have the transportation and distribution mechanisms sort of in place. Denver figured to be one of these cities for us.

We also linked ourselves, over the last two years, with the National Marine Fisheries Service and National Fisheries Institute "Catch America Program" which many of you may be familiar with—a national promotion for seafood, using the government agencies for development, and the industry firms and members to promote generic fish on a national basis. In each region, the Regional Development Foundation and the particular firms in the region, added their regional emphasis to this promotion. Seafood U.S.A. was the theme of this year's national "Catch America Program."

The West Coast Fisheries Development Foundation has targeted its promotion on the retail sector. Pat alluded to the problems that we have in the retail sector with squid. Squid is much more adaptable and much more easily sold in restaurants and the food service side of things. We have a lot longer row to hoe with squid in getting the consumer to pick it out of the seafood case. It is happening, but it is a long process.

The same holds true for fish in general even though we have a lot going for us in the retail sector. Fish is probably the most exciting thing that is happening as far as good protein and nutritional value; it is heads and tails above any other meat source you can think of in virtually every category. The meat people know this and they know that they are in trouble. Fish is consumed at the rate of about 13 pounds per person at this point, compared to 60 to 80 for poultry, pork and other meats. But the red meats are coming down every year. Poultry happens to be going up, but they are all waging a battle against the more perceived and the more direct health-benefited meat sources.

Let me tell you exactly what we did in Denver to get seafood handling improved in a particular target city and to promote fish in that city. We decided in a number of these target cities to try and act on a particular event, of a particular theme, that was taking place in that city. In San Diego this August, for example, there was a Taste of San Diego demonstration and exhibition that featured about 70 local restaurants, having booths in a particular tourist area. We plugged into that as a kind of kickoff for our seafood promotion.

In Los Angeles, we succeeded in having the May Company, the large department store chain, decide to start featuring fish in their restaurants and we had a kickoff reception for that particular promotion. We invited the press, the agencies, and the industry firms together in a kind of kickoff reception in a large May Company restaurant. We tried to tie our kickoff to our general promotion in the Los Angeles area.

Denver presents a little different problem. It does not have an inherent seafood theme running through it, but it is an active city, a city with a lot of people getting involved with fitness, with the health conscious craze, and with outdoor activities. An event that has been held in Denver the last three years is the largest bicycle race in the country attracting about 10,000 participants and well over 100,000 spectators on any one day. It is an event that also happily ties in with another food products company—the Coors Beer Company. Coors sponsors the bicycle classic every year. I do not know if you drink beer with fish, but I happen to, along with a lot of other people. We went to Coors and talked to them about perhaps tying our National Seafood U.S.A. promotion, and in particular, a West Coast promotion of fish, into their Coors bicycle classic.

The bicycle race happens over an 11-day period. There are spectators arriving in Denver and Boulder, Colorado, at varying intervals. The press is there in mass, not only the bicycle press but CBS and ABC sports coverage, national, and international

newspaper and other communication media people, because this is an event that attracts participants from over 30 countries. We insured that seafood and fish would be an integral part of not only a kickoff reception for the bicycle race, but of also the final banquet for the race itself, when over a thousand participants in the race sat down to a banquet-style meal of seafood. The seafood represented 11 different products from all six Regional Fisheries Development Foundation areas, and was donated primarily by industry firms. It was a tremendous opportunity to present, not only to national competitors, but international people, the media and the press, a showcase for seafood. We also had our Seafood U.S.A. banners posted all over the race course and for the communication media coverage of the race itself which added tremendously to our promotion.

So this event, which is well known to everyone in the Denver area, started to tie fish in with the fitness and health food craze. The purveyors in the city, not only the wholesalers, but the retail stores and the retail businesses learned there are fish available. This happened in June and there is going to be a lot more fish available in Denver. Our objective is not to try and tell somebody when they should have a promotion, but we are trying to get a generic excitement to fish, and then let the trade people pick up on the excitement and do what they will with it. Albertsons in particular in the Rocky Mountain area, has upgraded its handling of fish tremendously over the last couple of years. Albertsons now features a butcher block-type of seafood case in all of its stores in Colorado. In particular, Tom Burke, its buyer, has been tremendously excited about West Coast fish and some of these promotions that have been going on. So Albertsons really keyed in on this and achieved a number of increases in different product sales during the summer. The Great San Francisco Seafood Company that has 13 retail outlets throughout Colorado, picked up on the promotion and added consumer cooking classes to the Seafood U.S.A. theme. This achieved some very satisfactory increases in fish sales during the summer after this particular kickoff event. King Soopers, which has 40% of the retail trade in Colorado, also took advantage of the promotion, and in particular, tried to key it to salmon promotions. They expected and obtained to some extent salmon from the large Alaska catch that occurred this summer, and used our promotion to tie it in with the general Seafood U.S.A. theme and thereby experienced a large increase in salmon sales.

Another really good result of this kind of a promotion is the increased availability and increased notoriety of fish in the eyes of the media—the food writers, the food editors, the talk shows. A member of my staff and I appeared on two or three radio and television talk shows to talk about fish in general. People are now seeing that fish is gaining some notoriety as an excellent protein product and they are excited about it. They are excited about the variety that fish offers and the health benefits to it, and they are now receptive to more marketing promotions, not only from the Regional Foundations, but from any particular fish firm that wants to go out and do its own promotion. So you sort of have built up a cadre, or an expectancy in the communication media that fish are here to stay and that fish in general is something that is making some headway. A network is in place to work with.

The final type of outshoot from this is that the general fishing business and fishing industry, the distribution and marketing people in the Denver and Colorado area, now know that they can come to not only the Regional Foundations for expertise and help in promoting and marketing, but they can come to individual firms on the West Coast that they have worked with on these promotions. A firm, such as Molly Malone's, which is a

fledgling distribution chain and wholesaler that is making great strides in the food service, had asked one of our staff just last week to be part of a promotion and resource seminar for restaurateurs in the Vail and Aspen area. Our staff member spent a whole day as part of a team talking about fish and its benefits. It is surprising how little is known about fish.

The Red Lobster Inn is a large chain that I think most of you are familiar with but you do not see a lot of its Inns on the West Coast. It is going to be opening more and more outlets on the West Coast. It behooves us to get West Coast fish some notoriety in front of a chain such as Red Lobster. In conjunction with the Gulf and South Atlantic Foundation, where Red Lobster is headquartered, we went to a reception Red Lobster held in their new restaurant in Denver for the wholesale trade in the Colorado area and for the communication media, just to kind of let them know that fish is coming on. This type of promotion is very healthy for everyone, because fish has so much going for it these days and it is an exciting world to be in.

INDUSTRY/GOVERNMENT: HOW CAN THEY INTERACT?

Howard Ness, Southwest Regional Office, National Marine Fisheries Service, Terminal Island, California

This topic is perhaps an alternative way to do things more successfully. I am going to discuss a government corporation concept for conducting fishery development services that are currently being done within the confines of the federal government.

First, a disclaimer. The Fisheries Service is not actively advocating this concept. It is just an idea. There are some discussion papers within the National Marine Fisheries Service, looking at various alternatives for forming a wholly-owned or partially-held government corporation for conducting various activities. I will go into those in detail. The Fisheries Service in the past has been an advocate of active industry participation in government Fisheries Service programs; i.e., the Fishery Development Foundations which are still being funded through NMFS participating Regional offices, and are supported by federal people in government.

Government corporations have been in existence for some time and they are controlled currently by the Government Corporation Control Act of 1945. I will give you some notable examples of U.S. government corporations: The Export/Import Bank and the Ginny May or Government National Mortgage Association, which generates hundreds of millions of dollars for mortgage funds. Those are two examples of wholly-owned government corporations.

A corporation which is partially or privately held is the TVA established during the Roosevelt era. TVA, of course has a product producing goal. It was formed to produce jobs and electricity and is held by some to be very successful. National Satellite Communications Corporation is an example of a totally privately held corporation that was started by government money, but is now solely funded and administered by private persons.

The notable foreign corporations are the British Seafish Authority, once known as the Whitefish Authority, formed I believe, in the 1930's, and has been held up to be very, very successful, conducting fisheries development-type activity. The Japan External Trade Recovery Organization, or JETRO, has been extremely successful promoting export trade for Japan. It is a

quasi-governmental agency, employing more persons currently than the National Marine Fisheries Service. JETRO employs some 1,700 people in Japan and overseas.

Why should we have a corporation? What would the benefits be? Why even consider one? Some folks think that freedom from government hiring and procurement practices would be a blessing. It would allow an organization more flexibility to conduct its business and, of course, to operate in a business-like atmosphere. Another factor may be, flexibility to accommodate business cycles. The current development program that we have in the National Marine Fisheries Service, at times, has difficulty adjusting to year-to-year business cycles. An example is the Fishing Vessel Obligation Guarantee Program. It is a very controversial program within the industry and within the federal government itself. It has been accused of guaranteeing private lending money to the point of over-capitalizing various fisheries on the West Coast and the United States (the southeast Shrimp Fishery, and the West Coast Trawl Fishery).

Loan programs within the federal service, again, tend to be very inflexible. There is a very long process for change. Publication of rule changes in the *Federal Register*, as you all know, is a very tedious process and often, as in the case of an annual business cycle, takes too long.

Another way for a corporation to generate revenue could be through stock and bond issues in a corporation by means of a user fee. It would not be any different than what is being conducted now, except the user fee would go to the corporation instead of the federal government. That would be the only difference.

A corporation could be a mix of government and industry participants. It could range anywhere from a wholly-owned government corporation, which would obviously be controlled and regulated solely by the federal government with some industry participants, to a partially and jointly held government/industry corporation, jointly administered by government and industry people, and of course, it could be wholly privately held. Obviously the mix of government, or the government regulation stipulations would diminish as the percentage of the corporate stock holders increased in the private sector.

A possible suggestion of government funding has been Saltonstall-Kennedy funds. They are the answer and panacea for everything, although they are not very copious. Another would be foreign observer fees. There are several million dollars that have been collected from foreign governments and as yet are unspent. Some people are eyeing these funds and saying this would be a possible start up for a corporation. Special appropriations from Congress are highly unlikely in this administration. Corporate development of bond issues is somewhat feasible. That would be more feasible at a state level than a federal level. Lastly, of course, are stock issues.

A fishery corporation could perform some of the following functions: research development; training and education; administering grant programs; publicity promotions, such as Pete was alluding to; partnerships in fisheries development and consulting services. The old British Whitefish Authority created a technical pool of experts that world-wide have accomplished many, many good things in gear technology, aquaculture, production development techniques, and marketing.

In closing, I will name some specific programs at NMFS that could be targeted. They are: the Fishery Loan Program, which is an appropriate program but as yet unfunded; the Fishing Vessel Obligation Guarantee Program; and the Fishermen's Contingency Fund. These are all the loan programs lumped into one element within the Fisheries Service at this time. There are

also Fishery Development Grants utilizing Saltonstall-Kennedy revenues, and Fishery Research and Development, including publication of market news-type periodicals and distribution of education informational material.

Stephanie Revesz-Thorton, Humboldt Fishermen's Marketing Association, Eureka, California and PMFC Commissioner

Historically, people in the U.S. have not depended on marine resources as a basic component of the American diet, but the times are changing and the demand for seafood is growing. At present, the waters of the world furnish about 18% of man's intake of animal protein, in the form of 74 million metric tons of fish per year. Many times I have heard people comment on the insignificance of the U.S. fishing industry, and I am sure that the reasons for this are numerous, yet putting the U.S. fishing industry in context with the rest of the world, we find that the fishing industry ranks fifth in world fish production.

I would like to take a few minutes to present some economic facts regarding the industry to try to argue the point of insignificance. In 1981, the U.S. landings for fish products were 6 billion pounds, with a value of 2.5 billion dollars. In addition, the industry employed upwards of 200,000 people and 100,000 people in shore-side processing capacities, for a total of almost 300,000 people employed in the fishing industry.

Another measure of the significance of the fishing industry is obtained by using the U.S. Gross National Product (GNP). The U.S. GNP is frequently used as an indicator for the importance of an isolated industry. It is true that the fishing industry represents less than 1% of the U.S. GNP, but this is misleading because any single industry represents only a small percentage of the total outcome. For example, the U.S. auto industry seems extremely large compared to the fishing industry, but in actuality it only represents about 3% of the U.S. GNP.

To further pursue the importance of the fishing industry, we must go beyond the value placed in dollars, for dollars are frequently misleading because they do not discriminate among the qualitative aspects of the fishing industry, such as esthetics, tradition and a way of life. It goes without saying that indeed we have a very viable and significant industry; yet there is much to be done to improve development and utilization of fishery resources in the U.S.

Our challenge as an industry, in cooperation with the government, is to make fish and other seafoods an integral part of the American diet, while maintaining a stable business climate and sustainable resource base. The three major areas that need to be examined before proper development of our fisheries can take place, include management of our fisheries, processing capabilities, and new technology in the marketing sector. The course of development for fisheries resources made a drastic change in direction after the passage and implementation of the Magnuson Fishery Conservation and Management Act, otherwise known as the MFCMA.

It is mainly responsible for the changes that we see ahead. Perhaps the MFCMA's strongest asset is the long-term conservation of our fisheries resources. Most recently, the National Marine Fisheries Service, within the U.S. Department of Commerce, has been the focal point of government policy decisions in fisheries. The views on fisheries tend to change, as do government administrations, but fortunately, through rather consistent input from the industry and from dedicated Senators and

Congressmen and other concerned individuals, there has been a strong thread of policy aimed at making the seafood industry an important and integral part of the American economy.

However, one vital thread toward development of our industry is currently lacking, and that is stability. Uncertainty of regulations from season to season has led towards chaos in the marketing sector and to increased numbers of bankruptcies within the industry. The caution is that regulations do not overtake the reason for which they were established. It is important that regulations be sensitive to market needs, while simultaneously considering conservation and wise management of the resource without destroying the very threads that are needed for a healthy and stable economy.

The problem that we faced as an industry since development and implementation of the MFCMA, is that managers in the past have tended to look at the ease of management, rather than taking a comprehensive and wholistic approach to wise utilization. It is frustrating to us as an industry to realize that the original concept in establishing the Councils that regulate our fisheries is still an unfulfilled promise. This objective, or promise, was to develop a cooperative management regime, and this means involvement by all affected agencies and user groups in development of these management plans. It is very important to have fishermen holding positions on the Councils and participating in the plan development, not so much for the vote, but for their expertise in handling the resource, for who else knows better about the resource than fishermen themselves? I am confident, as the months go by, that we are slowly moving towards the direction of cooperative management. With the commitment by the managers towards the long-term well-being of the fishing industry, I think we will happily obtain our objective.

The U.S. fishing industry, I have overheard, has been labeled as one of the most diversified and internationally-oriented businesses. We rank second in world trade behind Canada. Even with the status in the world marketplace, there is still much that needs to take place in the processing sector to assure quality products delivered to the American consumer.

Cooperative industry/government interaction is gravely needed to encourage increased development of new facilities for quality control and for development of new processing technologies to meet the increasing demand for seafoods. Moreover, the industry feels that there is an obligation by the government to promote efficiency and allow for growth and development of our fishing industry within the U.S. An example of how government might fulfill these obligations is through tax incentives or low interest loan guarantees for improvement or construction of shore-side processing facilities. Until interest rates drop, foreign processors have an unfair advantage over the U.S. processing sector.

Probably the most exciting thing happening in the seafood industry today is that seafood, to the American consumer, is making a slow transition from a Friday-only, low priced item to an everyday item and a high-valued product. The action now is in the marketplace to open up the flow of fish to a wider and more comprehensive range of domestic markets within the United States. It is highly important that we move away from a static consumption of 13 pounds per person that we have maintained over several years. The "Catch America" industry/government campaign has been a good start towards allowing the American consumers to become more aware of fish as a basic necessity of their diet. However, we must be careful not to get locked into the fish days or the fish months as a means for marketing. Fishery promotion must be a daily and consistent effort, such as what

occurs with the beef industry.

In looking at both short-term and long-term needs for development of the fishing industry, various reports that I have examined have all had one thing in common. In the short-term, there is a need to improve efficiency and in the long-term, the goal is to make everyday proteins available to the American consumer. This long-term goal also includes development of aquaculture and underutilized species, such as krill. Most important to obtaining the short-term and the long-term goals previously mentioned is the availability of Saltonstall-Kennedy funding for fishery promotion and development. It is critical that the S-K funds remain available for the short-term to assist the industry in development, particularly in the marketing area. For the long-term, it will be important that the industry establish commodity commissions for the purpose of development and marketing. The commodity commission approach is perhaps the direction that the Regional Fishery Development Foundation should consider in the long-term.

In conclusion, I do believe that we, as an industry, cannot be satisfied until fish products are part of the everyday American diet. And with that goal in mind, I think that there can be positive interaction between industry and government towards promotion and development of fisheries. In conclusion, what I call my wholistic approach to fishery management involves good research, sound regulations to protect the environment *and* the resource, stability in regulations, business incentives in the processing sector, and assistance with marketing to help the industry help itself.

Barry Keene, California State Senator and PMFC Commissioner

I was asked to talk about how industry and government could interact and if there is one thing I have learned in ten years of dealing with my friends and colleagues from other States, I never try to tell them how they should manage their affairs. Each State has different problems and handles them differently. So fortunately, the topic changed to some extent to industry and government, how *can* they interact? It was suggested I report on forms of interaction in California as they have evolved over the last several years. So I will not tell you that this is the way to do it, but I will tell you this is one way to do it.

One major problem that we faced in California that may be a little different than what has occurred in some of the other States, was inattention by the legislature and the executive agency to fisheries problems. Now I am not saying that the regulatory agencies, such as the Department of Fish and Game, were not paying attention to the fishermen. In fact, in some instances, they felt that too much attention was being paid to them. Rather it was that in the grand scheme of things, in this huge bureaucracy that we have called the Executive Branch in California, involving literally hundreds of thousands of people, Fish and Game was a relatively small entity on the list of programmatic priorities. In the legislature we have 40 Senators and I have in my District about a third of the California coastline, so there are not too many legislators who are involved in fishing issues, although we are trying to involve more as we go.

In other words, California is such a large and diverse State that its own institutions do not accord a great deal of priority to fisheries issues—not like Washington and Oregon and some of the other States. Even the bills and the issues that are rather large issues to the industry, get reported better in the major

Oregon newspapers than they do in the major California newspapers. So that was what we were faced with some ten years ago. The first problem was inattention.

The other major problem that we felt we were confronted by was the fishing industry's lack of organization. There was not a single unified voice ten years ago to speak for the fishing industry in California and there still is not a single voice today, but we are a lot closer. It might not have been such a terrible problem that the fishermen did not speak with a single voice, except as you know, fishermen are very independent and very out-spoken people, and that is not an overstatement, let me tell you. Each association in each port in my District, let alone in the rest of the State of California, had things it wanted and things that it did not want and the desires and the goals and the values often conflicted with one another.

The first step that we took to address the twin problems, was to organize an annual event which we called "The Legislative Fisheries Forum." Early in the legislative session we reserved a large room in the State Capitol and invited fishermen from throughout the State of California. We invited legislators who represented the various fishing areas and we invited the directors of executive agencies that dealt with fisheries matters—people from Boating and Waterways and people from Water Quality and people from the Department of Fish and Game, and so on. The approach was to invite the fishermen to create their own agenda, to prioritize their own concerns and to talk about those concerns with legislators and people from the Executive Branch. And then to invite the legislators and the department directors to respond. It is rather informal. The fishermen come up in groups of two or three and they talk about the issues that concern them, and then the legislators ask questions. From that, we establish a legislative agenda. As you can imagine, the Forums at the outset, particularly, were rather boisterous. We had to have an ample supply of sergeants-at-arms there to make sure that the people did not come to too many blows with each other.

The Forums have really done a lot to overcome some of the major problems—inattention and disorganization. They forced elected and appointed state officials to pay attention to the fishermen and maybe even more importantly, they forced the fishermen to pay attention to each other and to start working toward common approaches to problems. Most of the major fishery legislation in California over the last decade has originated in those Forums. As they progress, the legislators and the department directors, like the fishermen, have used them to initiate new ideas. Let me give you a rather dramatic example.

In 1978, Charlie Fullerton, the California Director of Fish and Game, challenged the fishermen to match a proposed new state investment in salmon habitat restoration. The fishermen accepted the challenge and that year, the legislature passed a bill creating a Salmon Stamp Program, and it's been so successful at increasing salmon production and restoring a declining salmon population that the fishermen last year asked for and got a 50% increase in the salmon stamp fees to pay for further habitat restoration. The State has gone along, because of the effort the fishermen have been making, in also increasing its revenues to salmon habitat restoration.

The next major step was one that we could not take, but could urge on fishermen and encourage them to do, that was to organize basically a state-wide group to allow the industry to reach agreement within itself and to come to Sacramento and knock on the door and speak with a single voice. They did that when they formed the Pacific Coast Federation of Fishermen's Associations (PCFFA). That agency works with the more estab-

lished and older California Seafood Institute, which speaks for the processing portion of the industry.

Once we had some unity and we had these two organizations to represent the industry, we made sure that they had a formal voice on many official committees that the legislature established to deal with fisheries issues. For example, the Sea Grant Advisory Committee that attempts to give some direction to Sea Grant to insure that the research is practical, as well as of academic value. An even more dramatic example was when we created a Limited Entry Committee for salmon. Four of the five members are directly appointed by PCFFA, which we described in the legislation as "an Association deemed to represent the majority of commercial salmon fishermen in California." That was the way we handled that little legal problem.

Finally, in 1981, the State Senate, at my request, established a select committee of fisheries and aquaculture. A select committee, unlike a standing committee, can get into in-depth study. It does not process bills that are introduced. Rather it initiates, studies and develops a legislative program. So there was a select committee created, and the members of the other house, the Assembly, were also interested in getting involved in the process. They thought the select committee was a good thing. The legislators in the fishing areas insisted on participating, so we created a joint committee on fisheries and aquaculture.

Besides conducting the fact-finding hearings that I mentioned and providing staff to work with the industry and the executive agencies on a day-to-day basis, the Committee itself has now become the major author of key fisheries legislation in California. That basically has been the evolution of the legislative and executive interaction with the fishing industry in California over the last ten years, at least that portion of interaction that I am cognizant of. We have gone a long way toward initiating responses, not waiting for crises to arise. People feel better about that. We now have the various parties, the major players, establishing their own agenda and telling us first what their priorities are and asking for things with a unified voice. We have people in the California legislature who never knew there were fisheries issues, now paying attention to these issues. We think we have accomplished a great deal. We have a long way to go. Obviously, the problems of fishermen that can be solved by government have not all been solved in California. I am hopeful that we will continue to work well together and create the instruments to solve these problems.

Peter Granger, Executive Director, West Coast Fisheries Development Foundation, Portland, Oregon

To build on what these two speakers have said, I wanted to add a couple of points from the perspective that I enjoy as a quasi-private, quasi-public role. I think it's imperative that we continue to communicate, both those in the private sector and those in the public sector. Having a forum such as this and the existence of an entity such as PMFC facilitates that sort of thing. I think it is a responsibility of both sides to continue to communicate on the issues as much as possible.

I think it is important that there be a maintenance of agency-type functions, but also a maintenance of funds, such as the Saltonstall-Kennedy monies that enable industry to get involved on a direct basis. In the developing fisheries, of course, we have the so-called underutilized fish which on many coasts, are rapidly decreasing. We had an exchange during Pat's talk about whether squid, in fact, is underutilized at this point. In certain

areas it is and perhaps in Monterey it may not be. Resource management and development functions sometimes, if they are not communicated, can run at cross purposes. A fishery can develop, a market can develop and the stock may be inadequate to continue development into the future. On the other side of the coin, there may be a vast stock out there with no development taking place.

Finally, on a state-by-state basis, California is a very positive example of this that maybe the other States can take heed from. There is a need for, on the private side, stronger fishermen's associations and stronger processor's associations. California enjoys some of the strongest industry participation in that regard with possibly more acknowledgement by state agencies of development issues and not as much preoccupation with regulatory management issues.

AUDIENCE PARTICIPATION

A variety of questions were asked by the audience of the various speakers. A summary of the topics covered and the responses follow:

1. PRESERVING SEAFOOD QUALITY

A variety of chlorine compounds are used to assist in reducing bacteria as a means of preserving seafood quality. Hypochlorates are the most common forms. Mr. Price stated that protein quickly deactivates chlorine compounds so high concentrations need to be used, which very well may impart a chlorine taste to the product.

The variation in price per pound of preserving quality by the different methods discussed has not been examined but most can be done for very little cost or by inexpensive modification of currently used processing equipment.

The use of modified atmosphere packaging has been discouraged by the National Marine Fisheries Service (NMFS) based on the potential for botulism. The National Fisheries Institute will attempt to get NMFS to change their position at meetings in late 1982 on seafood packaging in Washington, D.C., and in Seattle. Mr. Price indicated ongoing research on botulism at the University of California (Davis), in Wisconsin, on the East Coast, and on the Gulf Coast will all show that if the product is held at a reasonable temperature (under 55°F) that there probably is not any problem. The botulism organism has been shown to not produce toxins at temperatures below 40°F in the laboratory and probably not below 50°F in the real world.

2. SUCCESS STORIES: SQUID

Mr. Flannagan recommended that squid be frozen, both to improve quality and to preserve it, so his company uses no chemical treatment to preserve the quality of fresh squid at present.

Mr. Flannagan indicated that squid is probably still an underutilized species as far as coastal stocks are concerned. However, many of the offshore populations appear to be feeding on krill which has an effect on texture and results in a high bacteria count. If these problems can be overcome in processing, the species is still underexploited.

3. INDUSTRY/GOVERNMENT INTERACTION

The basic thoughts put forward by the audience during the discussion period were as follows:

a. A fishery corporation could perform many functions. Discussion centered around whether it was needed and

whether it should be within government, private, or a combination of both. Government affiliation offers some stability and a source of funds to at least get started. The West Coast fishing industry is lukewarm on a corporation emanating from the federal sector.

b. Education of the consumer about fishery products needs expansion. The processors need to assist and cooperate in this endeavor. There must be changes at the retail level and in package labeling so the consumer gets what he or she is looking for. Voluntary programs aimed at setting up internal industry guidelines and regulations that will take care of things will not work according to Senator Keene. The reasons is, it penalizes the person who follows the rules and rewards the violator with a competitive advantage. There must be laws and regulations that set forth the requirements. The California industry is working with the State Department of Health Services to first advocate voluntary compliance, but also to establish both truth in advertising and truth in menu guidelines for seafood. These guidelines will be implemented by the State.

c. A national task force has been established to develop a national seafood quality improvement plan in collaboration with the industry. The first couple of meetings have focused on identifying the problems and reviewing the 1981 GAO report which addressed seafood quality of domestically and internationally marketed seafood. In addition to the task force there are some S-K projects under way. One in New England is investigating the feasibility of dockside grading of seafoods with an end of determining the feasibility of higher price for better quality. A second area is continued research and development in quality standards, and lastly a smaller project to attempt to obtain more precise information on the foreign requirements for the importation of seafood.

Update of Actions Taken on 1981 Resolutions

A number of the Resolutions adopted by the Commission in 1981 required continuing efforts by the Secretariat to assure that the Congress or concerned federal agencies would provide a positive response to permit achievement of PMFC's goals and objectives. These Resolutions grouped according to subject were:

Fish Processing and Fisheries Jurisdiction—1981 Resolutions 1, 5, 6 and 19: PMFC actively sought to gain Administration and Congressional support for changes in joint venture processing agreements (Resolution 1) and changes in California representation on the Pacific Fishery Management Council (Resolution 6). PMFC also supported the joint management of anchovies with Mexico (Resolution 5) and the use of Outer Continental Shelf Lands Act funds for fisheries programs (Resolution 19). The President signed S.2535 into law which regulates foreign fish processing vessels operating in state waters. Such activity is permitted only if the foreign nation is a party to a governing international fishery agreement with the United States and if the governor of the affected State extends permission after determining that processors in his State do not have adequate capacity to handle the U.S. caught fish in the fishery concerned.

Fisheries Management and Support—1981 Resolutions 3, 7, 9, 10, 16 and 17: PMFC addressed funding for federally man-

dated programs (Resolution 7), more detailed navigational charts (Resolution 9) and for support of the U.S. Coast Guard (Resolution 10). It also urged congressional support for state input to MFCMA changes (Resolution 3), for establishment of long-term base budget funding for federally mandated fishery research and monitoring programs (Resolution 7) and for continuing support of the Fish and Wildlife Coordination Act (Resolution 17). Through action by many entities throughout the nation a substantial portion of the Coast Guard FY82 budget was maintained. PMFC finalized arrangements with Bonneville Power Administration and is coordinating BPA monies for its member States for fishery monitoring and research.

Anadromous Fish Problems—1981 Resolutions 8, 14, and 18: PMFC worked actively to maintain funding for Columbia River hatcheries (Resolution 8), to support the input of State/Federal recommendations in developing the fish and wildlife programs of the Northwest Electric Power Planning and Conservation Act (Resolution 14), and to urge retaining licensing requirements for small hydroelectric projects (Resolution 18).

Efforts by the Northwest congressional delegation succeeded in preserving funding for the Columbia River hatcheries for the year. Extensive input for the Power Planning Council's fish and wildlife plan was solicited from member States. In addition, PMFC provided testimony on the recommendations for the fish and wildlife program to the Power Planning Council.

Resolutions Adopted in 1982

A total of 27 proposals were submitted to PMFC's Advisors and Scientific and Management staff for evaluation prior to presentation to the Commission for additional review and adoption as Resolutions. As a result of these procedures, 17 were unanimously approved, 3 were approved with one abstention, 1 was approved by a 4-1 vote, and the remaining 6 were rejected. The process whereby these Resolutions were implemented began with their publication in PMFC Newsletter number 37; however, the need for speedy Congressional and Federal agency action for some Resolutions required the Secretariat immediately after the Annual Meeting to solicit favorable action. The complete texts of adopted Resolutions and a summary of the supporting actions taken to date are provided below. Missing Resolution numbers are the result of rejection of six numbered proposals.

2. Saltonstall-Kennedy Funds

WHEREAS, Congress enacted the Saltonstall-Kennedy (S-K) Act to provide necessary funds for research and development projects to strengthen and develop United States commercial and recreational fisheries; and

WHEREAS, there has been some doubt as to the continuation of the S-K program; and

WHEREAS, fisheries development relies on good biological information; and

WHEREAS, fisheries management plans must be based on the best biological information available; and

WHEREAS, fishery research and development is of continuing national and regional importance; and

WHEREAS, fisheries development foundations, including

aquaculture foundations, have been instrumental in both initiating and reviewing proposals seeking S-K funding; and

WHEREAS, fisheries development foundations deserve a continuing voice on S-K review panels; and

WHEREAS, fisheries development foundations have been excluded from participation in the review process in the past at both regional and national levels;

THEREFORE BE IT RESOLVED, that Saltonstall-Kennedy funding be provided on a continuing basis for research and development projects to strengthen and develop U.S. commercial and recreational fisheries; and

BE IT FURTHER RESOLVED, that fisheries development projects be based on the best biological information available to protect the resource and those investing in the resource; and

BE IT FURTHER RESOLVED, that where good biological information is lacking, S-K funds may be utilized to help determine the necessary biological information; and

BE IT LASTLY RESOLVED, that fisheries development foundations be given representation on regional and national S-K review panels.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

3. Continued Funding of Anadromous Fish Conservation Act

WHEREAS, development and implementation of fishery management plans resulting from federal mandates such as the Magnuson Fishery Conservation and Management Act require establishing data on which management decisions can be made; and

WHEREAS, the salmon regulations developed by the Pacific Fishery Management Council require extensive biological, social and economic data; and

WHEREAS, these data result primarily from research and monitoring on stocks of salmon of the states of Alaska, California, Idaho, Oregon and Washington; and

WHEREAS, studies now underway are designed to provide continuing data for management of salmon resources; and

WHEREAS, support for these studies were provided by means of state and federal matching funds under the Anadromous Fish Conservation Act (P.L. 89-304); and

WHEREAS, additional studies and research are needed to evaluate the validity of escapement goals established for some river systems; obtain data on other river systems where no data exists; and provide data to assist in the restoration of fish stocks or mitigation of fish losses; and

WHEREAS, state fiscal problems and pending reductions in this federal grant-in-aid program will decrease funds available to the States for conducting these programs;

THEREFORE BE IT RESOLVED, that Pacific Marine Fisheries Commission (PMFC) urge the U.S. Congress to continue funding P.L. 89-304 at levels which permit the States to fulfill obligations demanded by federal mandates; and

BE IT FURTHER RESOLVED, that copies of this Resolution be provided to the congressional delegations of all PMFC member States.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

Action and Status

As it has for many years, PMFC strongly reiterated the urgency for continued funding of this program. In conjunction with the other two interstate marine fisheries commissions, PMFC submitted testimony to House and Senate Subcommittees concerned with those appropriations.

5. Comprehensive Salmon/Steelhead Trout Management

WHEREAS, the Pacific salmon and steelhead resources of the Pacific States and Alaska constitute an annually renewable resource of significant economic, recreational and cultural value to the region and the nation, returning in excess of half a billion dollars annually to the region's economy; and

WHEREAS, the productivity of that regional resource has diminished significantly over recent decades due to adverse impacts on spawning, rearing and migration because of harvest management practices and the degradation of freshwater and estuary habitat from dam construction, water development, pollution, urbanization, timber harvest practices, and road construction; and

WHEREAS, to achieve conservation and to improve fishery production, the management, restoration and enhancement of these salmon and steelhead resources presently must be coordinated among the multitude of Federal, State, and Indian tribal jurisdictions through which these migratory resources must pass; and

WHEREAS, recent Federal legislative acts (e.g., Magnuson Fishery Conservation and Management Act, Salmon and Steelhead Conservation and Enhancement Act, Pacific Northwest Electric Power Planning and Conservation Act) have reiterated the intent of Congress that management of Pacific salmon and steelhead must be coordinated; and

WHEREAS, the effective coordination must be supportive of commonly agreed upon objectives and in accordance with long range comprehensive planning for the welfare of the fisheries and resources;

THEREFORE BE IT RESOLVED, that the two regional fishery management councils concerned with ocean management of Pacific salmon and the Federal and State agencies responsible for ocean and inland conservation and management of salmon and steelhead resources proceed at once to develop a coordinated long range comprehensive plan for the conservation, management, restoration, and enhancement of Pacific salmon and steelhead resources and that the plan be: 1) consistent with a set of objectives to be developed by State, Industry, Federal, Council, and Tribal representatives; 2) comprised of a State by State segment developed by State, Federal, Industry and, where applicable, Indian tribal authorities responsible or concerned with habitat protection and fisheries management in that State; 3) coordinated in final form as a single comprehensive document which constitutes a practical blueprint for future conservation, management, restoration, and enhancement of anadromous fishery resources.

Adopted by majority vote of the five Compact States of Alaska, California, Idaho, Oregon, and Washington, with Alaska abstaining

6. Pacific Coast Management of Chinook Salmon

WHEREAS, chinook salmon are far ranging, crossing sev-

eral national and international boundaries during the course of their migrations; and

WHEREAS, chinook salmon are exposed to several directed and incidental hook-and-line and net fisheries during their years spent in the ocean; and

WHEREAS, many chinook salmon stocks are depressed below historical levels due to environmental degradation and continued heavy fishing pressure; and

WHEREAS, management authority for chinook salmon is shared by numerous political jurisdictions which have different management regimes; and

WHEREAS, the States of California, Oregon, Washington, Idaho, and Alaska have responded to the depressed status of many chinook stocks through the imposition of restrictive management measures and quotas and Canada has just begun to gradually regulate its chinook fishery; and

WHEREAS, coordinated coastwide management of chinook is necessary to promote rebuilding of chinook stocks; and

WHEREAS, salmon interception treaty negotiations between the United States and Canada have been underway for many years without according adequately high priority to the conservation and effective management of chinook salmon;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission respectfully requests the U.S. Secretary of State, the U.S. Secretary of Commerce, the U.S. Secretary of Interior, and the Canadian Minister for Fisheries through the U.S. Canada Salmon Interception Treaty Negotiations to immediately give highest priority to the resolution of the conservation issues facing chinook stocks.

Adopted by majority vote of the five Compact States of Alaska, California, Idaho, Oregon, and Washington, with Washington voting against

Action and Status

Immediately after adoption of this Resolution, it was hand carried to the U.S.-Canada treaty meeting by Washington Department of Fisheries. This action was followed up by transmittal of the Resolution to the Canadian Minister of Fisheries and Oceans; Canadian Director General, Pacific Region of the Department of Fisheries and Oceans; and the Canadian Consulate General. In addition, it was transmitted to the United States State Department, Secretary of State, appropriate treaty negotiators and appropriate United States congressional representatives.

8. Fishing Activities in Marine Sanctuaries

WHEREAS, the marine sanctuary program was established to preserve or restore areas for their conservation, recreational, ecological, or esthetic values; and

WHEREAS, few marine sanctuaries have as yet been designated in the United States so the benefits of this particular program are difficult to assess; and

WHEREAS, many proposed marine sanctuaries contain areas which support important commercial, recreational, and subsistence fishery activities; and

WHEREAS, nothing in the current marine sanctuary legislation or proposed regulations guarantees any level of continued fishing activities in the marine sanctuaries; and

WHEREAS, the currently proposed regulations may transfer

fisheries management authority in a sanctuary to the Federal office of Coastal Zone Management;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission supports the designation of only those marine sanctuaries which guarantee fisheries usages and recognize the fisheries management authority of current state or federal agencies within the sanctuary boundaries.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

Action and Status

This Resolution was transmitted to the House Merchant Marine and Fisheries Committee along with support for H.R. 2062 which addresses the concerns of this Resolution effectively. H.R. 2062 has cleared the Subcommittees as of the printing of this report.

9. Analysis of Benefits/Costs of Buffer Zones to Promote Shoreside Processing

WHEREAS, economic viability of shoreside processing of groundfish, particularly whiting, depends on ready access of harvesters to commercially productive concentrations of fish in close proximity to shoreside processing facilities; and

WHEREAS, species of marine and anadromous fish may congregate in relatively small areas close to shore, resulting in concentrated fishing activity involving several fisheries; and

WHEREAS, there are claims that this concentrated near-shore fishing activity can result in economically unproductive gear conflicts; and

WHEREAS, there are claims that the dumping of unwanted fish by foreign processors has adverse effects on the productivity of those fishing grounds, causing domestic fishermen delivering to shoreside processors to fish in other areas often further away from those processors; and

WHEREAS, the domestic economy can benefit from development of strong, year-around shoreside processing facilities; and

WHEREAS, fishermen and shoreside processors in the Humboldt Bay area have petitioned for establishment of a buffer zone around that area where foreign processors will not be permitted to operate in order to minimize interference with the development of the domestic industry; and

WHEREAS, the National Marine Fisheries Service has advised the Regional Fishery Management Councils that buffer zones for the purpose of enhancing development of domestic fishing and processing may be supportable under certain circumstances and conditions;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission strongly endorses the need for immediate analysis of the biological, economic, and social factors which must be considered in evaluating the desirability and acceptability of buffer zones around processing port areas such as Humboldt Bay; that analysis to include, but not limited to:

- 1) estimates of impacts of buffer zones of alternative areas (e.g., 6 miles, 15 miles, 30 miles) on fuel costs, travel time and other economic factors for: a) fishing vessels supplying shoreside processors; and b) fishing vessels supplying floating foreign processors;

- 2) estimates of local and regional economic benefits (dollars, jobs, etc.) from shoreside processing increases;

- 3) evaluation and documentation of potential crowding and gear conflict problems in areas under consideration;

- 4) evaluation and documentation of biological/ecological impacts of discards on habitat and fishing success.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

10. Protection for Fishermen in Bankruptcy Proceedings

WHEREAS, U.S. commercial fishermen who utilize vessels of the United States to catch, take or harvest fish caught in U.S. waters, can reasonably be expected to sell their product to a person or entity utilizing a facility located within the United States for processing of fish for commercial use or consumption, otherwise defined as a U.S. fish processor; and

WHEREAS, under current law fishermen are treated as ordinary, unsecured creditors in fish processor's bankruptcy proceedings; and

WHEREAS, secured creditors and employees of a processing firm are assured priority in repayment of debts to be discharged in bankruptcy proceedings; and

WHEREAS, fishermen, as unsecured creditors, do not have priority or any legal recourse in receiving payment in debts owed; and

WHEREAS, commitments to fishermen are as important as those to secured creditors; and

WHEREAS, in 1981, in the State of Alaska, 200 fishermen were left with initially unpaid debts totaling nearly \$2 million when a U.S. processing firm claimed bankruptcy, then obtained protection from the current bankruptcy code to discharge those debts lawfully owed; and

WHEREAS, H.R. 6582 would amend a loophole in the current federal bankruptcy code which puts U.S. fishermen at a disadvantage by allowing a few fish processing firms to induce fishermen to rely on payments to be honored when obtaining protection from the bankruptcy code to discharge those debts owed;

THEREFORE BE IT RESOLVED, that fishermen be granted a status equivalent to labor in bankruptcy proceedings and priority be given to unsecured claims originating from the sale of fish to certain fish processing firms; and

BE IT LASTLY RESOLVED, that the Pacific Marine Fisheries Commission urges Congress to support and enact H.R. 6582 for bankruptcy protection for fishermen.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

11. Truth in Seafood Labelling

WHEREAS, there has been a significant increase in the number of brands or labels of foreign packed fishery products on U.S. market shelves; and

WHEREAS, many of the labels do not state where the prod-

not originated or where it was packed; and

WHEREAS, some of the labels are worded in a manner contrived to confuse and mislead the buyer into the belief that the product is domestic or was processed domestically; and

WHEREAS, the American consumer is being deprived of the factual information upon which a decision to purchase might be made, for reasons of health and sanitation standards, for reasons of economic self interest, or for any other reason;

THEREFORE BE IT RESOLVED, that all concerned governmental entities firmly enforce existing "truth in labelling" laws in order that the American consumer be fully informed as to the origin of any food products and particularly as to where such products were processed or canned.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington.

12. Encourage Government Institutional Markets to Purchase West Coast Seafoods

WHEREAS, U.S. West Coast landings of flatfish exceeded 22,000 metric tons in 1981; and

WHEREAS, U.S. West Coast landings of rockfish exceeded 54,000 metric tons in 1981; and

WHEREAS, U.S. West Coast landings of all other groundfish species exceeded 39,000 metric tons in 1981; and

WHEREAS, considerable potential exists for increasing domestic harvest and use of all seafood species; and

WHEREAS, at the present time the U.S. military and other federal and state agencies purchase almost no seafood of West Coast origin;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission urge individuals responsible and agencies to adopt a policy of increased purchases by governmental agencies, including the military, of all species of domestically produced and processed seafood from Alaska, California, Oregon, and Washington.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

13. Wetlands Protection

WHEREAS, wetlands are critical to the survival of many fish, shellfish, and wildlife species, and maintenance of water quality; and

WHEREAS, about one half of the original 150 million acres of wetlands in the contiguous United States have been destroyed; and

WHEREAS, continued protection of wetlands and estuaries is critical to the maintenance of many species of marine fish and shellfish, and is particularly important to anadromous species such as salmon and steelhead; and

WHEREAS, there are wetlands that have been degraded; that were important for fish and shellfish habitat; that could be restored or rehabilitated; and

WHEREAS, many important fish and shellfish species are dependent on coastal wetlands or estuaries for at least part of their life cycles; and

WHEREAS, under Section 404 of the Clean Water Act and

Section 10 of the Rivers and Harbors Act, the U.S. Army Corps of Engineers is authorized to issue permits for minor discharges into the waters of the United States; construction or dredging operations; and major landfills and ocean dumping; and

WHEREAS, interim final rules for the Section 404 program published in the Federal Register on July 22, 1982, and made final on August 23, 1982, issued nationwide permits allowing discharge of dredged and fill material into rivers, streams, lakes, and adjacent wetland areas above the headwaters and into isolated nontidal waters; and

WHEREAS, these nationwide permits provide virtually no protection to millions of acres of prime aquatic habitats; and

WHEREAS, on August 23, 1982, the Environmental Protection Agency requested comment on its Section 404(b) (1) guidelines, and has asked whether the jurisdictional scope of Section 404 should be changed or the existing presumption against discharges into wetlands "retained, revised, or eliminated"?

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission urges the Administration and the Congress to retain application of the Section 404 permitting process to all waters of the United States, including wetlands and estuaries, as currently defined in the Section 404(b) (1) guidelines, and to retain and apply rigorously the existing presumption against discharges into wetlands; and

BE IT FURTHER RESOLVED, that the nationwide permits for discharges into rivers, streams, lakes and adjacent wetlands above the headwaters and into isolated waters should be revoked and that permit applications for discharge of dredged fill material be considered on an individual basis to insure needed protection of these critical natural resources and associated values; and

BE IT LASTLY RESOLVED, that the Pacific Marine Fisheries Commission memorializes the member States to consider appropriate action for the restoration and rehabilitation of degraded wetlands and estuaries critical to the life cycles of important commercial and recreational species of fish and shellfish.

Adopted by majority vote of the five Compact States of Alaska, California, Idaho, Oregon, and Washington with Oregon abstaining

14. Detrimental Effect of Water Diversion

WHEREAS, various activities of man have led to the destruction of habitat needed by anadromous and other fish; and

WHEREAS, as civilization makes more and more demands on the habitat of anadromous and other fish, an ever increasing threat is posed to the survival of these renewable fish resources; and

WHEREAS, one of the most destructive activities of man as it applies to anadromous and other fish habitat is diversion of water for other purposes; and

WHEREAS, the principle of mitigation for damages done to anadromous fish runs has long been accepted in practice on the West Coast, implying that a right of those fish to their habitat has been abridged; and

WHEREAS, the implication that anadromous and other fish should have equal consideration with other uses for water resources has never been firmly established; and

WHEREAS, instead of mitigation for damages done to the anadromous fish resource, further damage is being encouraged by subsidizing costs for exporting that water far below the actual

delivery cost and, in some cases, at even lower "surplus" rates; and

WHEREAS, the cost of a commodity has a direct bearing on its use or conservation, and a direct relationship to the rights abridged in securing that commodity;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission endorses the principle that instream use of water by fish is a primary beneficial use of that water to which society and future generations have right; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission seeks action that guarantees that diversion of water from anadromous fish bearing watersheds be considered only as a last resort in meeting water needs elsewhere after all appropriate conservation measures have been introduced and that there be full mitigation of damage done by any diversion; and

BE IT LASTLY RESOLVED, that the Pacific Marine Fisheries Commission requests appropriate state and federal agencies to impose a pricing structure on water exported from anadromous fish bearing watersheds that at least covers the true cost of delivery plus the cost of mitigating any and all damage done to the affected anadromous fish resource within the tapped watershed.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

15. Outer Continental Shelf Development

WHEREAS, the U.S. Department of Interior has proposed a billion acre, five-year leasing program for oil and gas development on the Outer Continental Shelf (OCS), including OCS Lease Sale 73 offshore northern and central California (encompassing in excess of ten times Lease Sale 53); and

WHEREAS, these sales are planned for OCS areas off California and Alaska which include environmentally sensitive fishery habitats; and

WHEREAS, Lease Sale 73 offers offshore lands for oil development in areas that will potentially damage fishery resources as well as conflict with commercial and recreational fishing activities; and

WHEREAS, legislation has been introduced into Congress which would impose a moratorium on oil and gas development until the year 2000 (H.R. 6365), in the area from Pismo Beach, California to the border of Oregon; and

WHEREAS, the current administration is seeking to decentralize federal control of national programs in favor of regional authority, delegating increasing responsibilities for directions and support to the States; and directing that new sources of funding be developed for national programs which more directly relate expenditures to benefits ("user pays" concept); and

WHEREAS, in areas where oil and gas development already exists, it would well-serve the national interest to apply a portion of the revenues derived from development of non-renewable natural resources to assure the continued protection, development and wise use of renewable resources; and

WHEREAS, in 1981, the Pacific Marine Fisheries Commission unanimously supported and endorsed Resolution 19 which called for OCS Lands Act Funds to be developed for fisheries programs;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission memorializes the Congress and the President to enact H.R. 6365 and supports further legislation imposing a

moratorium on OCS development in areas where oil and gas reserves are not critical to the national interest and where such development could adversely impact commercial and recreational fisheries and the resources those fisheries depend upon; and

BE IT LASTLY RESOLVED, that the Pacific Marine Fisheries Commission memorializes Congress to support the establishment of an Ocean and Coastal Resources Management and Development Fund, supported by Outer Continental Shelf oil and gas revenues; and that the funds be applied to Federal cost-sharing and State coastal zone management programs, fishery programs and related activities, fishery management and research, restoration and enhancement of the salmon resource, energy impact planning, and Sea Grant programs.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

Action and Status

This Resolution generally supports opposition to oil development in critical areas per H.R. 1089, H.R. 2059, and S. 760. That support is highly relevant to bills before both Houses of Congress for "OCS-revenue sharing": H.R. 5, S. 800, and S. 872.

The three interstate marine fisheries commissions submitted joint comments on H.R. 5 to the Subcommittee on Oceanography on March 21, 1983. That testimony expressed concern for equity of allocations among the States and urged also that a mechanism be found to encourage and fund cooperative federal-state programs concerning interstate fishery resources. Similar comments were transmitted to the Senate and stressed the strong desire that the block grants, of the sort proposed in S. 800, not be considered replacements for appropriated funds under such programs as the Anadromous Fish Conservation Act and the Commercial Fisheries Research and Development Act.

16. Reduce Effects of Acid Rain on Fish Resources

WHEREAS, most acid rain begins with the industrial burning of coal, oil, and other fossil fuels or smelting of ores to produce metals; and

WHEREAS, the polluting gases that escape are dioxides of sulfur and nitrogen which are transformed in the atmosphere to sulfuric and nitric acids; and

WHEREAS, their return to lakes and streams, forests and fields, is called "acidification"; and

WHEREAS, when acidification occurs, it impoverishes the diverse life of lakes, streams, and possibly forests and other environments, and leaches needed nutrients from soils and releases toxic metals such as aluminum, zinc, and magnesium from soils into streams and lakes, and

WHEREAS, acid rain has been and is occurring in Northern Europe and North America; and

WHEREAS, such acid rain has affected fishery resources in lakes and streams and has, for example, killed many salmon populations in Norwegian rivers; and

WHEREAS, increased burning of coal and other fossil fuels in the western States will increase the incidence of acid deposition that will affect fisheries including Pacific salmon resources; and

WHEREAS, California has implemented a program for

monitoring acid rain, and identifying sources and solutions for acid rain;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission memorializes the member States to develop monitoring and acid rain prevention programs to protect fish resources; and

BE IT LASTLY RESOLVED, that the Pacific Marine Fisheries Commission memorializes the Congress and the Environmental Protection Agency to enact legislation and regulations to reduce emissions causing acid rain, including the use of coal washers, stack scrubbers, new combustion technologies, low sulfur fuels and alternative sources of energy such as co-generation, solar, wind, geothermal, and biomass, and to encourage conservation.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

17. Marine Recreational Fisheries Socio-Economic Study

WHEREAS, in 1981 the National Marine Fisheries Service adopted a comprehensive Marine Recreational Fisheries Policy, a part of which determined there was "a lack of a comprehensive and reliable participation, catch, effort, and socio-economic data base" in regard to marine recreational fisheries; and

WHEREAS, optimum yield is defined in the Magnuson Fishery Conservation and Management Act of 1976 as maximum sustainable yield as modified by any relevant economic, social, or ecological factor which will provide the greatest benefit to the nation; and

WHEREAS, information is available through various local, state and federal agencies, business organizations, and fishing associations pertaining to: direct and indirect expenditures for fishing boats, equipment, tackle, fuel, services, lodging, taxes, etc.; and the creation of direct and indirect employment by the commercial and recreational fisheries; and

WHEREAS, such information is critical to determining optimum yield as defined in the Magnuson Fishery Conservation and Management Act of 1976; and

WHEREAS, the necessary information has not yet been brought together in a comprehensive manner; and

WHEREAS, relatively little funding would be necessary to provide for such compilation on an annual basis; and

WHEREAS, the future of the currently ongoing NMFS funded National Marine Recreational Fishery Statistics Survey (MRFSS) to collect catch and effort data on the marine recreational fishery is unknown; and

WHEREAS, the commercial passenger carrying fishing vessel fleet is an important economic component of the marine recreational fishery;

THEREFORE BE IT RESOLVED, that the National Marine Fisheries Service be urged to enlarge the scope of marine recreational fishery data collection to include information about direct and indirect expenditures and direct and indirect employment and to specifically include the commercial passenger carrying fleet in such data collection; and

BE IT FURTHER RESOLVED, that the Marine Recreational Fishery Statistics Survey be continued; and

BE IT LASTLY RESOLVED, that the most current information be published for analysis and review as quickly as possible and in a timely manner on an annual basis in the future.

Adopted unanimously by the five Compact States of Alaska,

California, Idaho, Oregon, and Washington

Action and Status

This Resolution was transmitted to the Administrator of the National Oceanic and Atmospheric Administration and to its Assistant Administrator for Fisheries. The Marine Recreational Fishery Statistics Survey has been funded for calendar year 1983 and an S-K grant has been provided to the Sport Fishing Institute for economic research on recreational fisheries. Additional economic studies of marine recreational fisheries are pending.

18. Research on Fish and Shellfish Processing Waste Utilization and Disposal

WHEREAS, the development of a domestic commercial industry that will fully utilize the living marine resources within the 200-mile limit will generate a tremendous quantity of seafood waste; and

WHEREAS, a major portion of these processing wastes presently are not utilized or have only limited use; and

WHEREAS, the primary component of such fishery processing wastes is protein which can be converted to fishmeal and other byproducts; and

WHEREAS, the traditional methods used to produce useful by-products require large expenditures for processing equipment and energy, and are impractical for most fish processing operations; and

WHEREAS, the development of alternative uses for wastes resulting from fish processing activities is essential to the future development of a domestic commercial industry; and

WHEREAS, alternative methods for utilizing these wastes need to be researched and evaluated;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission urges the National Marine Fisheries Service to direct increased and sufficient Saltonstall-Kennedy funding to conduct research on the disposal and utilization of seafood processing wastes.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

19. Caribbean Basin Initiative

WHEREAS, the entire fishery operation of the United States depends on the marketing and processing system which has been developed over the years to absorb and distribute the catch; and

WHEREAS, industry and government are expending significant effort and monies to further develop the processing, marketing and distribution systems of this country; and

WHEREAS, a significant shift of cannery operations out of the continental United States has deprived domestic producers of a market (for albacore tuna on the Pacific Coast the number of canners has dropped from six to three and only one of those is actively buying domestic fish this year); and

WHEREAS, there has recently been a dramatic increase in the volume and the number of sources of foreign canned fishery products imported into the United States market; and

WHEREAS, provisions in the Caribbean Basin Initiative (H.R.

5900 and S. 2377) which allow unrestricted importation of canned fishery products from the Caribbean Basin Initiative countries would result in the closure of the remaining canners of those products in the continental United States and Puerto Rico;

THEREFORE BE IT RESOLVED, that the Caribbean Basin Initiative (H.R. 5900 and S. 2377) be amended to provide that the existing tariffs, minimal though they are, be continued on foreign canned fish products imported into the United States.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

Action and Status

The Caribbean Basin Initiative passed Congress and was signed by the President. It was modified to protect Puerto Rican canning operations, by providing that tuna prepared or preserved in air-tight containers and imported into the United States from the Caribbean nations is not to be allowed the duty-free treatment accorded many other Caribbean products under the initiative. This was the essential thrust of this Resolution, which seems to have been satisfied by this action.

20. Establishment of the United States Exclusive Economic Zone

WHEREAS, the position of the United States is not to sign the United Nations Law of the Sea Treaty; and

WHEREAS, it is now necessary for the President and Congress to clarify the Nation's policy towards the utilization of living marine resources off the Coast of the United States; and

WHEREAS, the fishery resources within the Fishery Conservation Zone except for highly migratory species as defined in the Magnuson Fishery Conservation and Management Act should be utilized first and foremost for the benefit of the fishing industry of the United States;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission supports the concept of a 200-mile Exclusive Economic Zone.

Adopted by majority vote of the five Compact States of Alaska, California, Idaho, Oregon, and Washington with Washington abstaining

Action and Status

This Resolution is essentially supportive of the thrust of H.R. 2061 and S. 750 and of President Reagan's recent proclamation of an EEZ. Detailed comments were provided the Senate Commerce Committee staff at Senator Packwood's request.

21. Full Fishery Mitigation for the Trinity River Unit of the Central Valley Project

WHEREAS, the ocean troll and recreational salmon fishery is important to the economy of northern California and southern Oregon; and

WHEREAS, there exists major in-river sport fishery and legally recognized subsistence and ceremonial Indian fishing on the Klamath River system; and

WHEREAS, the ocean chinook salmon fishery off northern California and southern Oregon has, and is, being regulated

principally on the basis of Klamath River escapement by the Pacific Fishery Management Council; and

WHEREAS, sixty percent of the chinook salmon habitat in the Klamath River system is located in the Trinity River and its south fork; and

WHEREAS, Trinity River runs have been in a state of decline as a direct result of the construction and operation of the Department of Interior's Bureau of Reclamation's Trinity Unit of the Central Valley Project which includes the Trinity and Lewiston dams and the diversion in the past of as much as 86% of the water from that system at Lewiston Dam; and

WHEREAS, the Bureau of Reclamation in establishing a hatchery to mitigate fish losses as a result of the construction and operation of the Trinity Unit selected a figure for the salmon runs above Lewiston when runs basin-wide were depressed (1945), instead of using later data from a two year study (1956-57) indicating the runs to be between two to four times larger than the number the Bureau of Reclamation chose to mitigate for; and

WHEREAS, the hatchery established at Lewiston has continually failed to obtain returns necessary for maximum operation even though there have been heavy returns below the hatchery indicating the faulty design of the fishway; and

WHEREAS, there have been losses (below Lewiston dam) of habitat and fish as a result of the water diversions; and

WHEREAS, a proposal by Congressman Vic Fazio would require the federal government to allocate \$650,000 to match state funds for dredging the Trinity's main channel and for construction of a debris dam on Grass Valley Creek, a major spawning tributary to the Trinity River; and

WHEREAS, as a result of the construction and operation of the Trinity project, all salmon fisheries—commercial, sport and Indian—have been adversely affected, causing severe economic dislocations, loss of recreation, and interference with traditional ceremonial and subsistence fisheries;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission memorializes the Department of Interior to mitigate for the total fish losses above Lewiston Dam based on the Department of Fish and Game's 1956-1957 studies or best available data, that the Trinity Hatchery fishway be redesigned to attract returning spawners in the lower river, and that all habitat and fish losses below Lewiston Dam resulting from the operations of the Trinity Unit be fully mitigated; and

BE IT FURTHER RESOLVED, that the PMFC urges Congress to support Congressman Fazio's proposal to provide funds for a project to restore salmon and steelhead habitat below the Trinity River Dam; and

BE IT LASTLY RESOLVED, that the Pacific Marine Fisheries Commission memorializes the Congress to call for a General Accounting Office evaluation of the Bureau of Reclamation's operation of the Trinity Unit of the Central Valley Project.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

Action and Status

H.R. 1438, recently introduced in Congress, addressed the mitigation relief requested by this Resolution at the Central Valley Project on the Trinity River.

23. Opposition to Ocean Dumping of Radioactive Wastes

WHEREAS, the oceans of the world are vital to all life on the

continents; and

WHEREAS, the Pacific Ocean waters off the shore of the United States are the basis of the West Coast's commercial and recreational fisheries, which are a source of food for the people of the United States, which provide jobs for the people of the West Coast, and which are important to the West Coast's recreation and tourism economies; and

WHEREAS, the marine environment is a fragile ecosystem that may be significantly altered or contaminated by shortsighted disposal of radioactive wastes; and

WHEREAS, ocean disposal of radioactive materials would be irrevocable and would be impossible to correct if it later proves to be an erroneous practice; and

WHEREAS, radioactive wastes have been dumped in the coastal waters off the coast of California and Washington, at least, and some samples of ocean sediment have been found to be contaminated with radioactive materials, including plutonium; and

WHEREAS, the consequences of radioactive wastes in the marine environment are poorly understood and may pose a threat to the human food chain; and

WHEREAS, the U.S. Environmental Protection Agency has prepared a draft of regulations to encourage a resumption of ocean dumping of radioactive wastes, which the United States discontinued in 1970; and

WHEREAS, the U.S. Department of Energy is preparing an environmental assessment on its plan to dispose of low-level radioactive soil by dumping it in the ocean, and EPA has testified that it anticipates receiving a permit application from DOE by December 1982; and

WHEREAS, the U.S. Navy is preparing an environmental impact statement on its plan to dispose of more than 100 decommissioned but dangerously radioactive Polaris nuclear submarines by scuttling them, possibly in an area supporting commercial and sport fisheries and their attendant ecosystems or elsewhere off the West Coast of the United States; and

WHEREAS, the U.S. Senate is considering H.R. 6133 to extend and amend the Marine Protection Research and Sanctuaries Act, commonly known as the Ocean Dumping Act; and

WHEREAS, Representative Glen Anderson of California has proposed an amendment to the Ocean Dumping Act, approved by the U.S. House of Representatives, that would require any federal agency proposing to dump radioactive waste into the ocean to provide EPA and Congress with site-specific information about the full health, environmental and economic consequences of the proposed dumping; and

WHEREAS, the Anderson amendment also would allow either house of Congress to veto any permit that EPA issues for ocean dumping of radioactive waste;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission respectfully memorializes the President and Congress to ban the scuttling of nuclear submarines and all other dumping of radioactive wastes in Pacific Ocean waters under the control of the United States until and unless future valid and reliable scientific studies prove it safe; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission supports the Anderson amendment to the Ocean Dumping Act as a reasonable interim measure pending further scientific research and a congressional investigation of the effects of all radioactive contamination of the ocean from all sources to determine the effects of the contamination and to prevent repetition of radioactive waste dumping done without public notice or in violation of laws; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fish-

eries Commission supports an international treaty to ban the disposal of radioactive wastes anywhere in the Pacific Ocean until and unless future valid and reliable scientific studies prove it safe, and respectfully requests the President and Congress to work diplomatically to oppose any dumping of radioactive wastes anywhere in the Pacific until and unless the treaty takes effect; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission respectfully requests that the Congress, the President, the Environmental Protection Agency, the National Marine Fisheries Service, and the National Oceanic and Atmospheric Administration provide for regular monitoring of marine life in the vicinity of the existing radioactive waste dumpsites off the West Coast of the United States, including those near the Farallon Islands, and provide full information from the monitoring to the Pacific Coast States; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission respectfully requests that EPA provide Pacific Coast state and local governments with advance notice prior to publication in the Federal Register of any changes in existing ocean-dumping regulations, and conduct public hearings on the West Coast and consult with Pacific Coast state and local governments before adopting any changes in the regulations; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission respectfully requests the U.S. Navy to conduct public hearings in Fort Bragg and other major West Coast fishing ports on the draft environmental impact statement on disposal of nuclear submarines; and

BE IT LASTLY RESOLVED, that the Pacific Marine Fisheries Commission transmit copies of this resolution to the President and Vice President of the United States, to the Speaker of the House of Representatives, to each Senator and Representative from Alaska, California, Hawaii, Idaho, Oregon, and Washington in the Congress of the United States, to the Governor of each of the United States Territories in the Pacific, to the Administrator of the Environmental Protection Agency, to the Director of the National Marine Fisheries Service, and to the Administrator of the National Oceanic and Atmospheric Administration.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

Action and Status

Extensive correspondence has been transmitted concerning this Resolution and Resolution 24. Senator Keene of California has been made an advisor to the United States Delegation to the Seventh Consultative Meeting of the London Dumping Convention. The United States Navy is presently in the process of deciding on disposal of their nuclear submarines on land as opposed to at sea. If disposal at sea is decided upon, then additional hearings will be held regarding disposal sites.

24. Pacific States Representation at London Dumping Convention

WHEREAS, the Seventh Consultative Meeting of the London Dumping Convention will take place in February, 1983, in London; and

WHEREAS, the United States is a member of the London Dumping Convention and will be represented at the Seventh Consultative Meeting; and

WHEREAS, the United States in the past has allowed advisors representing divergent points of view to be part of the U.S. Delegation to consultative meetings of the London Dumping Convention; and

WHEREAS, ocean dumping is of great concern to the Pacific Coast States; and

WHEREAS, California State Senator Barry Keene is an acknowledged legislative expert on this issue;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission, representing the States of Alaska, California, Idaho, Oregon, and Washington, respectfully requests that the United States allow a representative of the Pacific Coast States to be part of the U.S. Delegation to the Seventh Consultative Meeting of the London Dumping Convention as an advisor; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission nominates California State Senator Barry Keene as the Pacific Coast States' representative to the Seventh Consultative Meeting of the London Dumping Convention;

BE IT LASTLY RESOLVED, that the Pacific Marine Fisheries Commission send copies of this resolution to the President and Vice President of the United States, to the Speaker of the House of Representatives, to each Senator and Representative from the States of Alaska, California, Hawaii, Idaho, Oregon, and Washington in the Congress of the United States, to the Governors and presiding officers of the Legislatures of the States of Alaska, California, Hawaii, Idaho, Oregon, and Washington, to the Governors of each of the United States Territories in the Pacific, and to the Secretary of State of the United States.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

25. Agency Access to Marked Salmon for Coded-Wire Tag Recovery

WHEREAS, the coded-wire tag (CWT) is the most important management tool presently being used to evaluate ocean salmon stock distribution and harvest rates in ocean fisheries; and

WHEREAS, other vitally important programs utilize CWTs including hatchery evaluation, genetic studies, release location evaluation, and wild stock evaluation; and

WHEREAS, Pacific coast agencies have significant dollar investments in the recovery of CWTs from ocean fisheries; and

WHEREAS, recovery of these tags from the ocean fisheries is essential for the evaluation of ocean stock distribution and harvest rates; and

WHEREAS, access to marked fish containing CWTs is sometimes denied to agency representatives, or a price is sometimes demanded for the heads taken from marked fish; and

WHEREAS, lack of access to fish containing CWTs prevents collection of valuable information and may bias the results of the sampling effort; and

WHEREAS, Alaska statute requires that heads of all fin-clipped king and coho salmon must remain attached to the fish until sold; and

WHEREAS, Washington Administrative Code now makes it unlawful for any person to fail to relinquish upon request to the Washington Department of Fisheries any fish tag or part of a fish containing a CWT;

THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission urge Pacific coast State and Federal fishery

agencies to enact regulations which assure agency access to fish tags and marked salmon containing CWTs, and that no charge be levied for the removal of heads for CWT recovery; and
BE IT LASTLY RESOLVED, that the various States be encouraged to develop a program informing fishermen and fish dealers of the positive value of such a CWT program.

Adopted unanimously by the five Compact States of Alaska, California, Idaho, Oregon, and Washington

Status Reports of PMFC Activities

Marine Recreational Fishery Statistics Survey

The end of 1982 completes 3½ years of data collection by the Marine Recreational Fishery Statistics Survey (MRFSS) on the Pacific Coast. Through 1982, the MRFS has interviewed in excess of 155,000 marine anglers at fishing sites between the Mexican and Canadian borders. The MRFS is the first field survey of marine anglers to simultaneously interview anglers throughout the entire year in all fishing modes (beach/bank, man-made structures, private/rental boats and party/charter boats). This allows for a detailed analysis of total fishing effort and catch and the changes that occur seasonally and between modes for the various regions of the Pacific coast. The MRFS will continue in 1983 with a goal of interviewing 41,000 anglers. These interviews gather data on the anglers catch; demographic and economic information and fishing avidity data for the various fishing modes. A separate telephone survey of random households, at two month intervals, estimates the total angler trips by mode for various subregions of the Pacific coast. The telephone survey contacts 75,000 households annually. This telephone survey data along with the field interview data is used to determine total participants and their catch by mode and subregion for each two month seasonal period.

The expanded data tables for the various years of the survey have been delayed by contract and programming problems. It is anticipated that the 1979-1981 data reports will be published sometime in 1983. It is hoped that 1982 data can also be completed in 1983. These annual reports will be published under the U.S. Department of Commerce (NOAA/NMFS) "Current Fishery Statistics" report series. Individuals desiring copies should request PMFC to add their name to the mailing list.

Preliminary analysis of 1980 MRFS data indicates that Pacific Coast marine anglers take about 15 million trips a year and catch an average of 4.6 fish per trip. The average expenditures per trip vary from a low of about \$2.50 per trip for pier and jetty fishermen in Oregon and Washington to a high of \$54.50 per angler for charter boat anglers in Washington State.

Regional Mark Processing Center

The work of the Regional Mark Processing Center consists of two discrete but interrelated functions:

- Maintain and upgrade regional data bases for coded wire tags (CWT) and finmarks, including publication of annual data reports;
- Facilitate regional coordination of tagging and finmarking studies.

1. Data Management

Substantial progress was made in maintaining and upgrading the regional data bases for CWT releases and recoveries. The annual *CWT Release Report* and the *Mark List* reports were published on schedule in March, 1982. No recovery reports were published. However, Washington and Alaska recovery data for 1979 and 1980 were processed and distributed as the data became available. In addition, all States have made significant strides in processing and reporting long overdue recovery data. At the present rate of progress, the 1979, 1980 and possibly 1981 recovery reports will be published in 1983, thus largely realizing the goal established by the PMFC Salmon and Steelhead Committee that all States report CWT recoveries to PMFC within six months of the year's end.

The regional data base was also modified to include previously unreported freshwater escapement recoveries (i.e., at hatcheries, fish traps, spawning grounds, etc.) and miscellaneous estuarine and marine recoveries. The latter includes those recoveries in NMFS' Columbia River juvenile outmigrant sampling program and those made by U.S. observers stationed on foreign vessels in the 200-mile Fishery Conservation Zone.

2. Regional Coordination

Regional coordination efforts emphasized the standardization of procedures used for CWT tagging and recovery programs. Coded-wire tag usage, for example, has expanded dramatically to the point now where over 24 million salmon and steelhead are tagged annually at a cost of over one million dollars. An additional 4.5 million dollars is expended coastwide for tag recovery programs in U.S. and Canadian commercial and sport fisheries. However, because this coastwide program largely evolved over the last 15 years on a piecemeal, agency-by-agency basis, a variety of methods are now used for tagging studies and recovery programs. Given the regional importance of CWT data to management and research, and the substantial cost involved in both tagging and recovery, it is important that valid results are produced as well as being cost-effective.

At PMFC's request the Mark Committee reviewed the regional CWT program at the annual Mark Meeting in January. Not unexpectedly, many more questions were raised than answered at that time. The Mark Committee recommended that two technical workshops be held in 1982 to review all aspects of tagging: the first to deal with experimental design, and the second with tag sampling programs and estimation procedures.

These two workshops were held at Silver Creek Falls, Oregon in March and September. Approximately 50 participants attended each workshop, composed of managers, scientists, and technicians from federal, state, Indian tribal, and private agencies, and participants from Canada. In both workshops, the goal was to examine current procedures, identify problem areas, and recommend regional guidelines wherever possible. Results and recommendations are listed below.

A. Workshop on Experimental Design

Tagging studies may be divided into three basic types:

- 1) Multiple comparison studies (i.e., experimental)—to compare relative survival and/or contribution to

fisheries of two or more experimental groups of fish;

- 2) Stock assessment studies (from hatchery viewpoint)—to measure contribution and distribution of a particular stock;
- 3) Stock contribution studies (from fishery viewpoint)—to measure contribution of major stocks to a particular fishery.

Guidelines were developed for each type of tagging study, with particular attention given to the statistical validity of the procedures. No consensus, however, was attempted on just how many fish should be tagged for each type of study. It was felt that the number tagged depended on too many variables (i.e., biology of the stock, predation rates in-river, tagging objectives, etc.) to be able to develop fixed standards.

Most tagging studies are designed for experimental purposes (Type 1) or for hatchery evaluation (Type 2). Yet, over the years, coded wire tags have become an increasingly valuable tool for fishery management. Therefore, management in many cases has had to piggy-back their needs onto tagging studies, inadequately designed to estimate ocean contribution. However, this was shown to be acceptable for many hatchery contribution studies and for the control groups of some multiple comparison studies.

B. Workshop on Tag Recovery and Estimating Procedures

Any meaningful analysis of a tagged anadromous salmonid population requires statistically sound estimates of recovery in all relevant commercial and sport fisheries as well as estimates for in-river recoveries and escapement. Accordingly, workshop participants divided into two mini-groups to address sampling programs for these different environments. A third mini-group composed largely of statisticians and data managers addressed the complexities of estimating total tag recoveries from sampled tags.

While all agencies had somewhat unique features in their sampling and estimating procedures, the degree of commonality between agencies was much greater than previously expected. In addition, many problem areas were common to all agencies. These *problem areas* include the following:

- 1) Non-Sampled Harvest (e.g., unreported catches in every fishery, including "take home" catches, some subsistence and ceremonial catches, incidental catch of juvenile chinook sold as pink salmon in purse seine fishery, etc.);
- 2) Sampled Harvest from Multiple Catch Areas (creates major problem for expanding recovery data since individual tag recoveries cannot be assigned to a specific catch area);
- 3) Restricted Access to Heads by Some Buyers (results in non-random sampling at port of landing);
- 4) Unstable Funding (results in inability to guarantee that tags released one year will be recovered at an adequate rate when the fish return two to three years later);
- 5) Lack of Standards for Sampling Rate (Current goal is 20%, however, there is little evidence to suggest that this is on target. Standards are needed to guarantee adequate sample sizes for researchers designing studies, and yet of reasonable sample sizes to minimize the recovery burden for sampling agencies.); and

- 6) Need for Estimates of Statistical Variation (e.g., variance and confidence limits associated with stock contribution estimates).

C. General Workshop Recommendations

Many recommendations came out of the two workshops, most of which are technical and are not reviewed here. However, three general recommendations were common to both workshops and will have a significant impact on regional tagging if fully implemented. These are as follows:

- 1) Establish a special "CWT Statistical Committee" composed of statisticians and researchers to seek solutions to unresolved statistical problems (i.e., how to handle tag recoveries from landings of fish caught in two or more management areas);
- 2) Increase effort to develop stable, long-term funding

- to guarantee the stability and continuity of the tagging and recovery program on a regional basis; and
- 3) Implement a coordinated marking program involving all agencies to assess the range of their stocks and their importance to the various fisheries.
 - a) Representative hatchery stocks should be selected and marked at a rate that will permit stock contribution estimates from the fishery management viewpoint. This includes extensive sampling of in-river fisheries and escapement.
 - b) Contributions of natural spawning wild stock should be assessed.

The results and recommendations of the workshops are now in the process of being combined into a manual on tagging and recovery guidelines and procedures.

ADMINISTRATIVE REPORTS AND ACTIONS

Executive Committee Actions

The Executive Committee met on March 16, March 29, July 14, and November 15, 1982 and took the following actions:

1. Authorized the leasing of word-processing equipment for the Portland headquarters office;
2. Selected Larry Six as Deputy Director/Executive Director Designate;
3. Approved the FY 1983 budget of \$288,421;
4. Recommended revision of the 1983-85 Biennial budget to allow for: maintaining State contributions at their current level of \$106,000 per year, considering postponing the 1984 Annual Meeting in Alaska and shifting it to Washington for 1984 to save costs, shifting any surplus savings to cooperative research;
5. Approved arrangements for the 1982 Annual Meeting in Monterey, California, including the fisheries development symposium;
6. Approved the list of new PMFC Commissioners and Advisors appointed in 1982;
7. Approved the revised 1983-85 biennial budget of \$570,999, approved the Treasurer's Report and accepted the Audit Report (see Appendix 1—Financial and Audit Reports);
8. Approved one emergency resolution for review by 1982 PMFC Annual Meeting participants as a Resolution;
9. Assigned the secretariat the task of publishing a general statement explaining what PMFC is and how it serves the States and the Region;
10. Approved November 7-8 as the dates and the Red Lion Downtowner in Boise, Idaho as the place for the 1983 Annual Meeting.

Executive Director's Report for 1982

Executive Director John P. Harville reviewed three functional areas of PMFC service to its member States and the Pacific Region:

1. Annual Meeting offers a regional forum to review fisheries issues.

The Annual Meeting provides a regional forum for PMFC's Advisors, Commissioners, and scientific and management staff to identify fisheries issues of Pacific Region concern, review relevant information, and formulate a PMFC position and proposed course of action for resolving those issues. PMFC's approved Resolutions are the vehicle for this process.

2. Resolutions provide a framework for PMFC policies and actions.

PMFC's secretariat devotes major attention and energy to implementation of those Resolutions, referring them formally to concerned Congressional Committees, National and State agency leaders, and others involved in the proposed actions prescribed in the Resolutions. These activities require extensive written campaigns, direct testimony before Congressional Committees, and quite frequently follow-up communications over a period of many months. PMFC's cumulative body of Resolutions provide the basic structure of PMFC policy positions on issues of concern to Pacific Region fisheries interests.

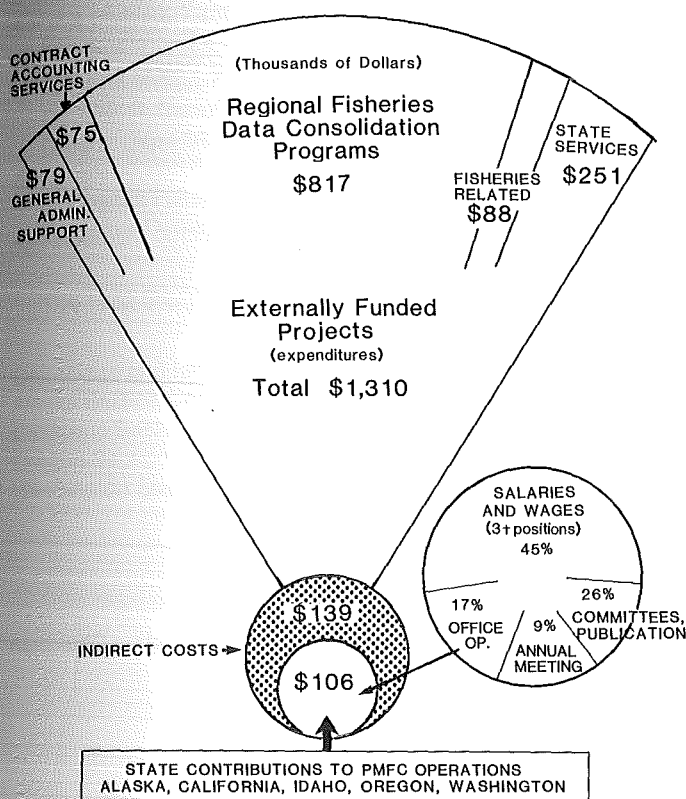
3. Operational services to PMFC States and the Pacific Region.

On behalf of its member States, PMFC's secretariat coordinates a broad array of operational functions, particularly in fisheries data collection, consolidation, and dissemination for regional fisheries management purposes. Grants and contracts currently total approximately \$1.3 million per year. Much of this funding is transferred directly to the participating States; some support regional activities managed by PMFC's secretariat. Major projects include the Pacific States portion of the National Marine Recreational Fishery Statistics Survey, the Pacific Fishery Information Network (PacFIN), and the salmonid Regional Mark Processing Center.

The accompanying figure indicates distribution of funds for overall PMFC support of these operational services. The sup-

port base of State funding (\$106,000 per year) provides the core for PMFC activities, supplemented by the indirect cost accruals (\$139,000 in 1982) generated by PMFC's external contracts. That combined secretariat support (\$245,000) divides approximately as follows: 45% for salaries and wages, 26% for publications such as the Annual Report and Newsletters, and for activities of PMFC's working committees, 9% for costs of the Annual Meeting, and 17% for general office operations—rent, telephones, postage, etc.

OCT 1, 1981 - SEPT 30, 1982



PMFC manages approximately 20 different externally funded contracts and cooperative agreements grouped in the accompanying figure into five categories. *General Administrative Support* includes participation in the activities of the Pacific and North Pacific Fishery Management Councils, and facilitation of State-Federal interactions generally for management of shared fishery resources. *Contract Accounting Services* are provided for the Salmon and Steelhead Advisory Commission and the Columbia Basin Fish and Wildlife Council (formerly the Columbia River Fisheries Council). *Regional Fisheries Data Consolidation Programs* encompass coordination of the Pacific Coast segment of the National Marine Recreational Fishery Statistics Survey, the Pacific Coast Fisheries Data Improvement Program which has developed PacFIN, the Pacific Fishery Information Network, and management of the salmonid Regional Mark Processing Center. *Fisheries-Related* projects concerns port sampling and data collection for albacore, salmon and groundfish. *State Services* encompass a broad array of "pass-through" funding for salmon and groundfish monitoring and management in the individual States.

In all three areas of service reviewed here, PMFC's effectiveness derives from its role as agent for its participating member States. PMFC's secretariat should be viewed as an extension of the fisheries interests and agencies of those States, not as a

separate entity. PMFC's operational efficiency is a direct result of the dedication and hard work of its small headquarters staff, which is assisted throughout the year by the Coordinators assigned by each of the States. Operations in recent years have been speeded and improved by addition of computer capability for cost-accounting purposes, and word processing equipment for correspondence and publications.

Treasurer's Report

The Treasurer, Gerald L. Fisher, presented the Reports of Receipts and Disbursements for the period October 1, 1981 to October 1, 1982 at the Annual Meeting in Monterey (see Appendix 1—Financial and Audit Reports). Receipts were: (1) member States contributions of \$132,000 which included payments by California for both FY 1982 and FY 1983 (\$26,000 each); (2) external contract payments of \$1,381,123 with National Marine Fisheries Service paying \$1,053,372, and (3) interest of \$9,786. Disbursements totaled \$1,529,783 divided between PMFC general support of \$220,090 and external contract expenses of \$1,309,693. The audit report for the fiscal year ending June 30, 1982 found the financial statements of the Commission to be in satisfactory condition.

The treasurer further reported that the Executive Committee had approved a 1983-1985 budget of \$570,999. A restrictive fund for paying Oregon unemployment benefits was established July 1, 1982. PMFC has experienced significant expenditures of its funds during FY 82 for unemployment compensation to individuals who have worked on projects funded by external contracts which have been closed. Rather than continue to absorb these expenses, all external contract-supported Oregon salaries will be assessed 3% to cover possible future unemployment benefits. This rate is similar to that paid directly to the State fund for Washington and California employees. Because the Oregon Employment Department considers PMFC to be a State agency, PMFC cannot change from paying actual unemployment compensation claims pertaining to an individual's employment with PMFC in Oregon.

Publications in 1982

The PMFC document entitled *Releases of Coded-Wire Tagged Salmon and Steelhead from Pacific Coast Streams Through 1981*, published in March, 1982 is the ninth of a series of annual reports tabulating all the various codes used by federal, state, Indian and private agencies for coded-wire tags in the Pacific Coast States. The report lists all previously-known codes, necessary corrections, and any new codes used in 1981. This report replaces all previous release reports and is the most current data available prior to publication of the tenth report in the series about March, 1983.

The 1982 *Mark List*, also published in March, contains a record of all groups of salmon and a selected group of steelhead (primarily from the Columbia River basin) that had been fin marked prior to their release.

The *Marine Recreational Fishery Statistics Survey Newsletter* was published in April. It provided a review of the Survey in 1982 and some preliminary data summaries from 1981.

The 34th *Annual Report of the Pacific Marine Fisheries Commission for the Year 1981* was published and distributed in June 1982. In addition, the 36th and 37th issues of the *PMFC Newslet-*

ter were published in July and December, respectively. The latter issue provided highlights of Annual Meeting events.

The Regional Mark Processing Center held two workshops during 1982. The report of the first entitled *Workshop on Coded-Wire Tagging: Experimental Design* was published in July, 1982. The second workshop on coded-wire tag recovery and estimation procedures will be published sometime in 1983.

1983 Annual Meeting

The 1983 Annual Meeting will be held on November 7-8 in Boise, Idaho, at the Red Lion Inn, Downtowner.

Personnel

The following were Commissioners during all or part of 1982:

Alaska

Dr. Ronald O. Skoog, Juneau—2nd Vice Chairman
Honorable Richard I. Eliason, Sitka
Charles H. Meacham, Anchorage

California

E. Charles Fullerton, Sacramento—Chairman
Honorable Barry Keene, Eureka
Stephanie Thornton, Eureka

Idaho

Jerry M. Conley, Boise—1st Vice Chairman
E.G. (Pete) Thompson, Sandpoint
Fred Christensen, Nampa

Oregon

Dr. John R. Donaldson, Portland—Secretary
Don Barth, Newport
Herbert F. Lundy, Lake Oswego

Washington

Rolland Schmitten, Olympia—3rd Vice Chairman
Honorable John A. Martinis, Everett
Robert D. Alverson, Seattle

The following were PMFC Coordinators in each State for 1982:

Alaska

Guy Thornburgh, Manager, Extended Jurisdiction, Alaska
Department of Fish and Game

California

Mel Odemar, Coordinator, State-Federal Fisheries Management Program, California Department of Fish and Game

Idaho

Jim Keating, Bureau of Fisheries, Idaho Department of Fish and Game

Oregon

Kirk Beiningen, Executive Assistant, Oregon Department of Fish and Wildlife

Washington

Dr. Charles E. Woelke, Washington Department of Fisheries
Sam Wright, Chief, Harvest Management, Washington
Department of Game

PMFC's State Coordinators facilitate all aspects of PMFC programs within their State agencies. They constitute a scientific/management advisory body to PMFC's Secretariat and assure appropriate communications among PMFC and agency personnel and the State's PMFC Advisors.

The following served as Advisory Committee members during all or part of 1982:

Alaska

Larry Powell, Yakutat—Section Chairman
William Bernhardt, Sitka
Ole Harder, Kodiak
Pete Isleib, Cordova
Bruce Lewis, Juneau
Ed Linkous, Ketchikan
Andy Mathisen, Petersburg

California

Rob Ross, Sacramento—Committee and Section Chairman
Frank Mason, San Diego
Anthony Nizetich, Terminal Island
L.R. Budd Thomas, Fields Landing
Roger Thomas, San Jose
Paul Wood, Bodega Bay
Carl Nettleton, San Diego

Idaho

Steven Herrett, Twin Falls—Section Chairman
Keith Stonebraker, Lewiston
Richard Schwarz, Idaho Falls

Oregon

Don Christenson, Newport—Section Chairman
Theodore Bugas, Astoria
Henry Pavelek, Albany
Joe Easley, Astoria
Jim Sugg, Charleston
John Marincovich, Astoria
Phillip Schneider, Portland

Washington

Earl Engman, Tacoma—Section Chairman
Philip Anderson, Westport
Barry Collier, Seattle
Kent Martin, Skamokawa
Guy McMinds, Taholah
Rudy Peterson, Seattle
Ted Smits, Seattle

Elections were held at the 1982 Annual Meeting to select the Commission's Officers and the Advisory Committee's Steering Group for 1983. The following officers were elected for 1983:

Chairman—
Jerry M. Conley, Director
Idaho Department Fish and Game
1st Vice Chairman—
Don Collinsworth, Commissioner
Alaska Department of Fish and Game
2nd Vice Chairman—
Bill Wilkerson, Acting Director
Washington Department of Fisheries
3rd Vice Chairman—
Dr. John R. Donaldson, Director
Oregon Department of Fish and Wildlife
Secretary—
E. Charles Fullerton, Director
California Department of Fish and Game

The 1983 Steering Group is composed of:

Committee and Idaho Section Chairman—Richard Schwarz
Alaska Section Chairman—Pete Isleib
California Section Chairman—Rob Ross
Oregon Section Chairman—Don Christenson
Washington Section Chairman—Earl Engman

During 1982 the PMFC Secretariat was composed of:

Dr. John P. Harville—Executive Director
Lawrence D. Six—Deputy Director
Gerald L. Fisher—Treasurer
Russell G. Porter—Staff Assistant, Marine Recreational
Fishery Statistics Survey Coordinator
Dr. J. Kenneth Johnson—Regional Mark Processing Center
Data Manager
Pam Kahut—Administrative Assistant
Debbie Wilkins—Secretary

Assisting the staff part-time were:

Leon A. Verhoeven, Consultant
Henry O. Wendler, Special Assistant—Consultant

APPENDIX 1—FINANCIAL AND AUDIT REPORTS

1982 Financial Statement

The Commission receives its financial support from legislative appropriations made in accordance with Article X of the Interstate Compact (creating the Commission) in which the signatory States have agreed to make available annual funds for the support of the Commission as follows: eighty percent (80%) of the annual budget is shared equally by those member States having as a boundary the Pacific Ocean; and five percent (5%) of the annual budget is contributed by each other member State. The balance of the annual budget is shared by those member States having as a boundary the Pacific Ocean, in proportion to the primary market value of the products of their commercial fisheries on the basis of the latest 5-year catch records.

Medical, Dental & Life Insurance.	6,114.33
Travel Expenses, unclassified.	3,981.13
Office Supplies & Maintenance.	9,498.38
Telephone & Telegraph. . .	3,545.22
Postage, Freight, Express. .	3,130.39
Rent, headquarters space. .	11,427.45
Printing & Publications. . .	3,505.97
Bond, Accident & Liability Insurance Premiums.	5,771.68
Library Supplies.	1,434.30
Capital Outlay.	1,892.60
Professional Services. . . .	14,033.00
Cooperative Research: Otolith Reader & Regional Mark Center Projects. . . .	34,139.15
Unemployment Compensation.	8,824.09
Other.	633.37
Subtotal State Funded Expenditures. . . .	\$220,089.55

TREASURER'S REPORT OF RECEIPTS AND DISBURSEMENTS

October 1, 1981 to October 1, 1982

CASH BALANCE October 1, 1981
(October 1981 Treasurer's Report). \$100,516.58

RECEIPTS:

Contributions by Member States		
Alaska (FY 1983).	\$29,000.00	
California (FY 1982 & 1983).	52,000.00	
Idaho (FY 1983).	5,300.00	
Oregon (FY 1983).	22,300.00	
Washington (FY 1983). . .	23,400.00	\$132,000.00

Other Receipts:

Washington Department of Game.	\$ 22,200.96	
Columbia River Fisheries Council.	11,895.66	
National Marine Fisheries Service.	1,053,372.58	
Oregon Department of Fish & Wildlife.	40,900.52	
Washington Department of Fisheries.	202,039.40	
Pacific Northwest Regional Commission. . .	22,733.17	
Bonneville Power Administration.	24,281.08	
Miscellaneous.	3,699.59	\$1,381,122.96
Interest on Saving Certificates.		\$9,786.27

DISBURSEMENTS:

Annual Meeting, November 1981, Portland Commissioners.	\$3,833.47	
Advisory Committee.	6,620.02	
Admin. & Research Staffs	6,400.36	
Tape Recording & Room Rental.	805.75	\$17,659.60
Salaries & Wages.		84,715.44
Retirement & Social Security.		9,783.45

External Contract Expenditures	
Council Liaisons.	\$61,190.24
NMFS-Columbia River Smolt Coordination. . . .	67,179.20
Wash. Coastal Sampling & Evaluation.	147,564.31
Federal & Oregon Shares of Salmon Maturity Study	9,542.66
NMFS-Salmon & Steelhead Act Coordinator.	7,986.35
Federal Share of Otolith Readers.	26,556.72
NMFS-Regional Mark Center.	83,897.03
NMFS-West Coast Aquaculture Foundation. .	10,963.67
NMFS-Marine Recreational Survey. . .	495,530.03
NMFS-State/Federal Relations.	18,221.32
NMFS-Albacore Logbook & Port Sampling.	60,046.52
NMFS-Swordfish Sampling.	—
BPA-Columbia R. Tag Recovery.	51,769.69
NMFS-Compatible Coastwide Fisheries Info. . . .	186,020.95
ODFW-Oregon Ocean Salmon Stock Dist. . . .	53,790.93
WDG-Marine Mammal Fishery Interactions. . .	12,815.33
Other.	16,618.28
Subtotal External Contr. Expenditures.	\$1,309,693.23
Total Disbursements.	\$1,529,782.78

CASH BALANCE, September 30, 1982.	93,643.03	
	<u>\$1,623,425.81</u>	<u>\$1,623,425.81</u>

(The Executive Committee approved the following budget at its meeting on November 15, 1982.)

Revised Biennial Budget for July 1, 1983—June 30, 1985

Salaries and Wages.	\$197,537
Fringe Benefits:	
Industrial Accident Insurance.	1,800
Social Security.	11,513
Retirement Pension Annuity.	9,000
Medical & Dental Insurance.	11,917
Unemployment Compensation Payments.	10,000
Group Life Insurance.	2,323
Subtotal Personnel Services.	<u>\$244,090</u>

General, Operating & Maintenance	
Office Supplies.	\$16,830
Telephone & Telegraph.	9,300
Postage.	8,400
Rent—Hdqtrs. Office & Other.	34,300
Treasurer's Bond.	550
Accounting Fees: Independent Audit.	8,600
Travel—Not Otherwise Classified.	13,600
Library Supplies.	3,500
Professional Services.	20,000
Liability Insurance.	10,800
Equipment Maintenance.	6,600
Miscellaneous.	230
Subtotal General, Operating & Maintenance.	<u>\$132,710</u>

Annual Commission & Staff Meetings	
Advisory Comm.—Travel Expenses.	\$32,845
Commissioners—Travel Expenses.	15,413
Res. & Mgt.—Travel Expenses.	25,449
Admin. Staff—Travel Expenses.	5,692
Mtg. Rms., Steno, Sound Rec'd.	3,000
Pre-mtg. In-State.	2,000

Spring & Special Meetings	
Executive Comm.—Travel Expenses.	2,000
Mgt. & Res. Special Meetings.	10,000
Subtotal Meetings.	<u>\$ 96,399</u>

Publications	
Annual Reports Nos 36 and 37.	\$8,800
Data Series.	-0-
Subtotal Publications.	<u>\$ 8,800</u>

Cooperative Research & Management	
Otolith Reader—25% Matching Share.	\$22,700
Mark Center—33% Matching Share.	63,800
Subtotal Cooperative R & M.	<u>\$ 86,500</u>

Capital Outlay.	<u>\$ 2,500</u>
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TOTAL EXPENDITURES.	<u>\$570,999</u>
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REVENUE	
Interest Income.	\$15,000
External Contracts Indirect Costs.	193,980
State Contributions:	
Alaska.	59,600
California.	51,200
Idaho.	10,600
Oregon.	44,400
Washington.	46,200
State Contributions Subtotal.	<u>\$212,000</u>

Total Revenue.	\$420,980
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Balance Available from Previous Year.	<u>209,726</u>
Total Available.	<u>\$629,706</u>
Less Expenditures.	<u>570,999</u>

Amount Carried Forward to Next Year.	<u>\$ 58,707</u>
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Audit Reports

CAHALL & ROBERTS
 Certified Public Accountants
 10700 S.W. Beaverton Highway, Suite 500
 Beaverton, Oregon 97005
 September 2, 1982

The Board of Commissioners
 Pacific Marine Fisheries Commission
 Portland, Oregon

We have examined the statement of assets and liabilities arising from cash transactions of Pacific Marine Fisheries Commission as of June 30, 1982, and the related statements of revenues collected and expenditures, changes in cash position and changes in fund balance for the year then ended. Our examination was made in accordance with the General Accounting Office "Standards for Audit of Governmental Organizations, Programs, Activities and Functions," the "Guidelines for Financial and Compliance Audits of Federally Assisted Programs," and fulfills administrative requirements of OMB Circular A-102, "Uniform Administrative Requirements for Grants-in-Aid to State and Local Governments," and OMB Circular A-122,

"Cost Principles for Non-Profit Organizations," and general accepted auditing standards and, accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As described in Note 8, the Commission's policy is to prepare its financial statements on the basis of cash receipts and disbursements, with the exception of of the accrual of expenses in the General Fund. Consequently, certain revenue and related assets are recognized when received rather than when earned all funds, and certain expenses are recognized when paid rather than when the obligation is incurred in the special projects funds. Accordingly, the accompanying financial statements are not intended to present financial position and results of operations in conformity with generally accepted accounting principles.

In our opinion, the financial statements referred to above present fairly the assets and liabilities arising from the cash transactions of the Pacific Marine Fisheries Commission as of June 30, 1982, and the revenue collected and expenditures during the year then ended on the basis of accounting described in Note 8, which basis has been applied in a manner consistent with that of the preceding year.

Cahall and Roberts

Balance Sheet June 30, 1982

ASSETS

	General Fund	Property Fund
CURRENT ASSETS		
Cash on hand and in savings.	\$3,468	
Cash in certificates of deposit.	70,000	
Receivables:		
Due from Washington		
Department of Fisheries		
Otolith Project.	8,988	
Freshwater Trapping.	42,417	
Ocean Salmon Project.	44,418	
Due from Washington		
Department of Game		
Marine Mammal Study.	5,930	
Due from National Oceanic and Atmospheric Administration		
Contract #82-ABH-00014.	1,305	
Contract #01-7-MO2-14721.	452	
Contract #82-ABD-8.	853	
Contract #79-ABC-00228.	3,000	
Contract #79-ABC-00260.	3,779	
Contract #80-ABC-00245.	1,876	
Contract #81-ABC-00151.	983	
Contract #81-ABD-PM1C.	3,419	
Contract #82-ABC-00116.	18,650	
Contract #82-ABC-00121.	789	
Due from Oregon Department of Fish & Wildlife-Council Support.	10,122	
Ocean Salmon.	12,128	
Due from U.S. Fish & Wildlife.	116	
Due from Bonneville Power Administration		
Coded Wire Tag.	23,184	

Prepaid employee pension plan contribution.	234
Prepaid expense.	975
Miscellaneous account receivable.	2,735

FIXED ASSETS

Investment in furniture and equipment.	\$102,781
Total assets.	\$259,821

LIABILITIES

Bank overdraft (checking account).	\$5,559
Accrued liabilities.	1,816
Unexpected grant funds:	
Due to National Oceanic and Atmospheric Administration	
Contract #80-ABD-PM1B.	4,106
Contract #79-ABC-00175.	389
Contract #03-78-MO2-295.	3,279
Contract #79-ABC-00207.	39
Contract #82-ABC-00160.	3,197
Contract #81-ABD-PM1B.	9,231
Total liabilities.	\$27,616

FUND BALANCES

General fund balance.	\$232,205
Property fund balance.	\$102,781
Total liabilities and fund balances.	\$259,821

APPENDIX 2—PACIFIC COAST FISHERY REVIEW REPORTS

Albacore Fishery in 1982

The 1982 albacore catch by U.S. vessels fishing off the Pacific Coast is estimated at 10,000,000 pounds. This is one of the lowest catches on record, almost 20,000,000 pounds below the 1982 total and roughly one-quarter of the 25-year average (Table 1). Washington landings totalled 565,000 pounds, down 1,363 pounds from 1981. Oregon landings were 1,899,000 pounds, a decrease of 5,265,000 pounds from 1981 landings. California's estimated landings of 7,500,000 pounds reflect a drop of 11,963,000 pounds from 1981 levels (Figures 1 and 2). Approximately 100 U.S. vessels fishing the Midway Island area in the Central North Pacific landed 3,800,000 pounds in Hawaii; this poundage was in addition to some Midway Island catches included in the state landings shown in Table 1.

TABLE 1. Albacore landings in California, Oregon and Washington (in thousands of pounds)

Year	California	Oregon	Washington	Total
1957	43,525	2,702	433	46,660
1958	27,188	9,754	1,503	38,445
1959	32,740	10,574	2,961	46,275
1960	35,113	4,563	526	40,202
1961	29,123	3,250	456	32,829
1962	36,622	8,949	365	45,936
1963	48,860	11,400	527	60,787
1964	42,551	4,452	1,055	48,058
1965	23,218	12,122	2,048	37,388
1966	18,189	18,041	1,101	37,331
1967	17,858	29,243	1,240	48,341
1968	15,077	37,752	3,050	55,879
1969	14,722	29,828	1,240	48,111
1970	29,932	21,782	4,390	56,104
1971	36,117	8,420	5,250	49,787
1972	21,001	23,056	16,238	60,295
1973	8,641	16,350	14,446	39,437
1974	11,806	25,225	17,983	55,014
1975	15,413	17,166	16,297	48,876
1976	27,754	5,932	7,202	40,890
1977	15,905	4,425	4,948	25,278
1978	21,000	11,248	5,008	37,256
1979	8,187	3,105	830	12,122
1980	9,500	3,250	1,299	14,049
1981	19,463	7,164	1,928	28,555
25-year average	24,380	12,780	4,492	42,156
1982	7,500*	1,899*	565*	9,964*

*Preliminary

Price per ton decreased from \$1,425 to \$1,000. Due to the long waiting periods involved in selling to the few operational canneries and their distance from the fishing grounds, many fishermen sold their catch directly to the public. This depressed economic climate caused many fishermen to leave the fishery in mid-season.

Southern California experienced a good inshore fishery for the first time in years with optimal environmental conditions and readily available concentrations of fish. This was reflected by the success of the recreational fishery. Except for scattered catches during the latter part of July, the nearshore fishery off the Pacific Northwest did not develop during 1982.

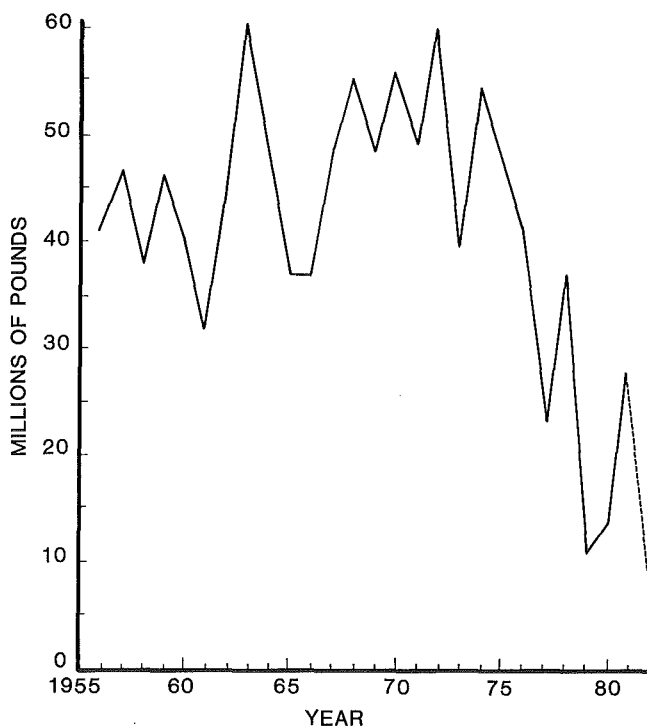


FIGURE 1. Combined annual landings of albacore in California, Oregon and Washington, 1956-1982.

California

The California albacore fishery for 1982 was early with fish appearing in late May along the Mexican Fishery Conservation Zone boundary. In early June, scattered catches up to 100 fish per day were taken near the Jasper Seamount. The fish ranged in size from 12 to 25 pounds. By the end of June, sporadic small catches (5-20 fish per day) were being made from Guadalupe Island, Baja California; out to Erben Bank and as far north as San Francisco. The best fishing was off Baja California. Many boats remained in port during June awaiting a price settlement on albacore and reports of better concentrations of fish.

During July fishing was widespread along the whole coast

Conditions Affecting the Fishery

Economic conditions in the tuna industry contributed greatly to the low effort and catch of the 1982 albacore season. Market gluts and consumer resistance to albacore prices curtailed buying and left fishermen with very limited markets for their catch.

from inshore to over 500 miles offshore; however, the best fishing ranged from Baja California north to Pt. Conception. The San Diego Dumping Grounds area was the most productive with many days of over 100 fish caught per day per boat. These fish ranged from 11 to 14 pounds. The catches further offshore from central and northern California included smaller fish, many weighing only 6 pounds. A price of \$1,425 per ton of albacore, delivered at the cannery, was established in July. Ocean conditions remained extremely favorable with clear oceanic waters inshore off southern California with optimum seasonal water temperatures (61°–63°). In southern California an excellent sportfishing season developed mainly because albacore for the first time in years were within reach of small private vessels. Fish ranged from 5 to 35 pounds, with 20- to 25-pound fish predominating.

By early August, fishing was scattered from Guadalupe Island north to Cape Mendocino; however, the most consistent fishing remained off southern California with jig boats averaging 60 to 80 fish per day. Catches up to 100 fish per day were made sporadically along and below the Mexican border. Several small purse seiner vessels had good catches off Baja California and near San Clemente Island. It was their best season in several years. Except for occasional fair catches, up to 100 fish per boat, the traditional fishing areas along the central and northern California coast did not provide consistent fishing. By the end of August, bait boats experienced excellent catches up to 2 to 2½ tons a day in nearshore waters along the Mexican border. At this period of the season, oceanographic conditions remained excellent for albacore fishing; however, the fishery was seriously affected by the economic conditions in the tuna industry. Albacore buying was curtailed except for fish landed at cannery sites in southern California. Price per ton dropped from \$1,425 to a price differential by size, such as \$1,350/ton—18 pounds and greater, \$1,225/ton—9 to 18 pounds, and \$1,000/ton for fish 9 pounds and under.

In September, because of a lack of cannery buyers along the coast, the fishing effort was greatly reduced. Many north coast fishermen were forced into long trips south to southern California where limited buying continued, however, at a slow rate. At times, over 50 boats waited up to 2 weeks or so to unload. Also adding to the congestion were many boats returning from the Midway Island area with full loads, 30 to 40 tons of fish.

October fishing centered off southern California about 150 miles southwest of Pt. Conception and around the Cortez and San Juan Seamounts. Bait fishing predominated with boats averaging 1 to 1½ tons per day. Catches of mixed sized fish were reported, ranging in weight from 12 to 50 pounds with three mods: 12, 20 and 30 pounds. Cannery buying continuing at a slow pace for those few boats remaining active in the fishery. The only bright side of the dismal season was the sport take of record size albacore, many in the 60 pound class with some into the 70's. By the first of November, the backlog of unloaded boats was slowly being reduced and the albacore season was over except for some local fishing out of San Diego and San Pedro.

Preliminary figures indicate that the 1982 season may be one of the lowest on record. Not because of a lack of fish, but because of a lack of a market. It is estimated that the season total will be between 7 to 8 million pounds.

Oregon

Small catches were first made off Oregon in early July in waters of 60° to 61°F in the Jackson Seamount area. Catches

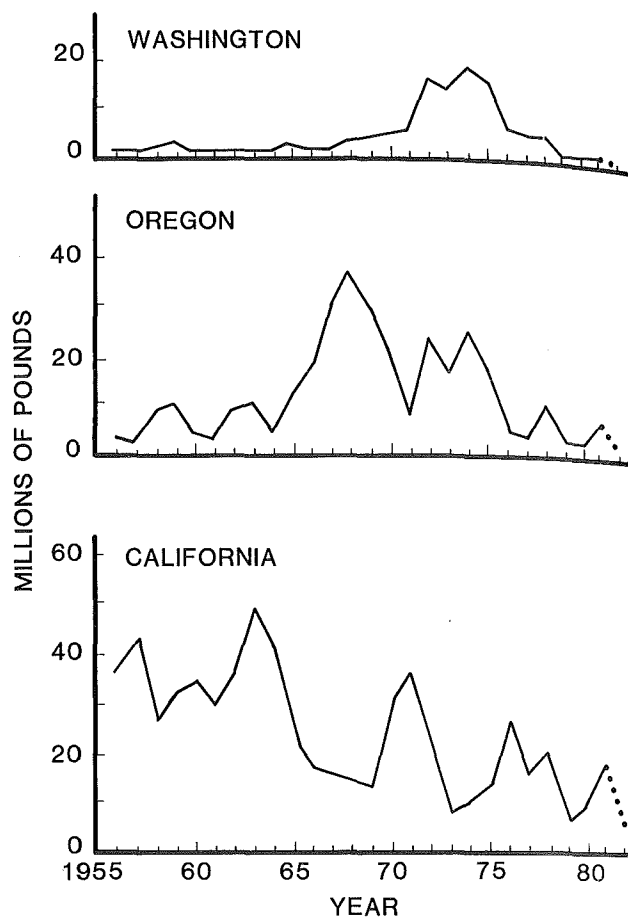


FIGURE 2. Annual albacore landings by State, 1956-1982.

increased to 30 to 50 fish/boat/day with a few boats reporting up to 150 fish/day near the Columbia River "dumping grounds" and 150 miles offshore from Cape Blanco and Newport. By the end of July the fishing had not shifted much, only moved a little closer inshore off Newport, where boats fishing 60 to 100 miles offshore averaged 30 to 75 fish/boat/day with a high of about 300 fish/day reported by one boat. The fishing remained fairly consistent off the Jackson Seamount but was spotty. The "dumping ground" area became poor. July landings totalled 61,268 pounds.

During August, fishing remained spotty all along the Oregon coast with boats catching 10 to 70 fish/boat/day about 100 miles offshore between Coos Bay and Newport. Effort was down in the Oregon area as good commercial catches simply did not develop in the nearshore area. Offshore Oregon, 1,000 to 1,500 miles, scores of 200 to 400 fish/boat/day were reported by a small fleet during early August but catches fell during the second week to 50 to 150 fish/boat/day. Catches offshore remained about the same though August. During the second half of August a fair number of boats operating about 100 miles off Coos Bay had catches of 50 to 100 fish/boat/day for about 10 days, but these catches dropped drastically by the end of the month. August landings totalled 1,436,369 pounds.

Scattered catches of 10 to 75 fish/boat/day were reported for a few days about 400 miles off Coos Bay, 200 miles off Newport, and 400 miles off Astoria in waters 62° to 65°F during September. Effort was low and no concentrations of fish showed up. A

few boats 900 to 1,500 miles offshore had catches of 1 to 2 tons/boat/day until about mid-month. During the second week of the month all canneries quit buying albacore. A renegotiated price was agreed to at the end of the month but the only places albacore were being bought were Terminal Island and Honolulu, resulting in long waiting times to unload, causing many boats to quit fishing. September landings totalled 286,154 pounds.

During October there was very little fishing off Oregon and landings amounted to 76,076 pounds. November landings totalled 38,885 pounds. Total season landings in Oregon totalled 1,898,752 pounds.

Washington

No albacore were landed in Washington ports until the second week of July, when a few boats began delivering small catches which were caught in the Jackson Seamount area and off the Columbia River "dumping grounds." July landings totalled 44,332 pounds.

Most Washington landings during August were made by boats returning from the Midway area or which had been fishing

1,000 to 1,500 miles off Oregon. Lack of fish concentrations in the nearshore area off Oregon, Washington, and Canada greatly reduced effort from Washington ports, as well as precluded sport charter fishing. Washington landings for August were 363,491 pounds.

During the first part of September, Washington buyers quit buying albacore and most Washington boats ended their season. Boats returning to port from the offshore area were forced to seek markets through small custom canneries or retail directly to the public. These landings amounted to 100,285 pounds for the month of September. Two boats returning from California in October landed 56,483 pounds of albacore, bringing Washington's 1982 albacore landing total to 564,483 pounds, the lowest annual catch since 1963 and only 12.6% of the 25-year average.

Compiled by Brian Culver, Washington Department of Fisheries.

Other Contributors:

Fred Hagerman, California Department of Fish and Game
Larry H. Hreha, Oregon Department of Fish and Wildlife

Dungeness Crab Fishery, 1981-82

The 1981-82 Pacific Coast Dungeness crab landings, including Canada, were 41.0 million pounds, 3.2 million pounds below the 1980-81 catch of 44.2 million pounds. This is 600,000 pounds more than the 20-year average (1962-81) of 39.4 million pounds and 2.8 million pounds more than the 10-year average (1972-81) of 37.2 million pounds. Landings in Washington (excluding Puget Sound), Oregon and California were 21.8 million pounds, 2.2 million pounds under the 1980-81 season, but 600,000 pounds over the 10-year average (1972-81) of 21.2 million pounds.

Conditions Affecting the Fishery

Fishing was very intense early in the season, but effort and catch decreased rapidly to very low levels for most of the season. A 30-day extension of the season off Oregon (15 days off Washington) and a very high price enticed many crabbers back into the fishery. Crab condition during the extension was marginal. Price during the season started at 65-85 cents and ranged to \$1.80 late in the season. A shift of effort from Washington and central Oregon to northern California was also noted.

Alaska¹

Landings were 16.2 million pounds and set a new record surpassing that of last year. Southeastern, Yakutat, and Kodiak areas produced 85% of the catch. The number of boats was more than twice that of last year and totalled 355 for the State. Considerable dead loss was experienced due to some new and inexperienced fishermen entering the fishery and some unsuccessful attempts to air freight live crab to the lower 48 States.

British Columbia¹

The preliminary total of British Columbia landings at 1.1

million pounds will likely be increased later. Even so, landings somewhat lower than the 1981 harvest of 2,898,000 pounds are expected, due mainly to lower availability, especially along the north coast. Soft shell closure of a month on the south coast had some effect by curtailing effort during summer months.

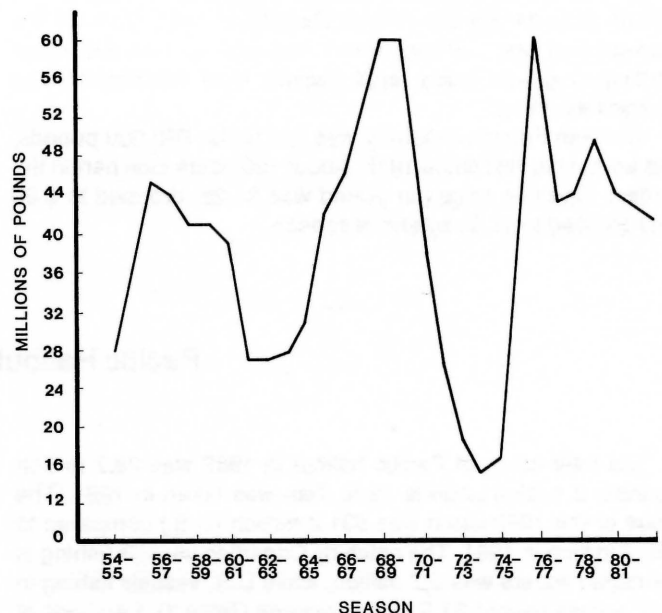


FIGURE 1. Pacific Coast Dungeness crab landings by season, including British Columbia, 1954-1982.

¹Alaska and British Columbia crab data are reported by calendar year.

Washington

Coastal Washington Dungeness crab landings for the 1981-82 season totalled 2,564,632 pounds. This figure sets a new record low for the fishery (since 1950) which was established last season at 2,689,142 pounds. Landings for December, January and February were 1,397,678 pounds. Summer recruitment, a 15-day season extension (to September 30) and increased fishing effort resulted in September landings of 320,229 pounds. Only 95 boats participated in the fishery "regularly" during the season. This is a decrease of eight boats from the previous season and 25 to 40 fewer than participated in the fishery in the late 1970's. The ex-vessel price per pound was generally \$.80 to \$.85, when the season opened, and increased to \$1.20 by the end of February 1982 where it remained until late August. Ex-vessel prices were generally lower by the end of September, but most major processors had ceased buying by early September.

Landings in Puget Sound totalled 1,335,000 pounds during the 1981-1982 season. This figure, although well above the long-term average, is well below the average of the last five seasons. Only 315 of the 350 vessels eligible under the license moratorium participated in the fishery.

Oregon

Landings continued to decline with 8.7 million pounds landed compared to 9.5 million pounds last season. However, a 30-day extension of the season to October 15 resulted in 162 boats landing about 2.3 million pounds during the final six weeks of the season. Without the extension that 2.3 million pounds would have been part of next season's harvest and the 1981-82 harvest would have been only 6.4 million pounds. Crab condition on September 1, 1982 was marginal but improving. Price per pound ranged from \$.90 to \$1.55 in September, but fell to \$.75 to \$.90 by October 15. Overall effort was down from last year, but 465 boats made at least one landing.

California

Landings totalled 10.5 million pounds, down 1.5 million pounds from last season. Crescent City led all ports with 6.9 million pounds. By the end of December 1981, 74% of the harvest had been landed. Effort was intense with 432 boats participating with many large vessels from Washington and Oregon assisting.

The San Francisco fishery was just under 200,000 pounds, the lowest harvest since 1916. About 100 boats took part in the fishery. Opening price per pound was \$1.25, dropped to \$.90 and climbed to \$1.80 by end of season.

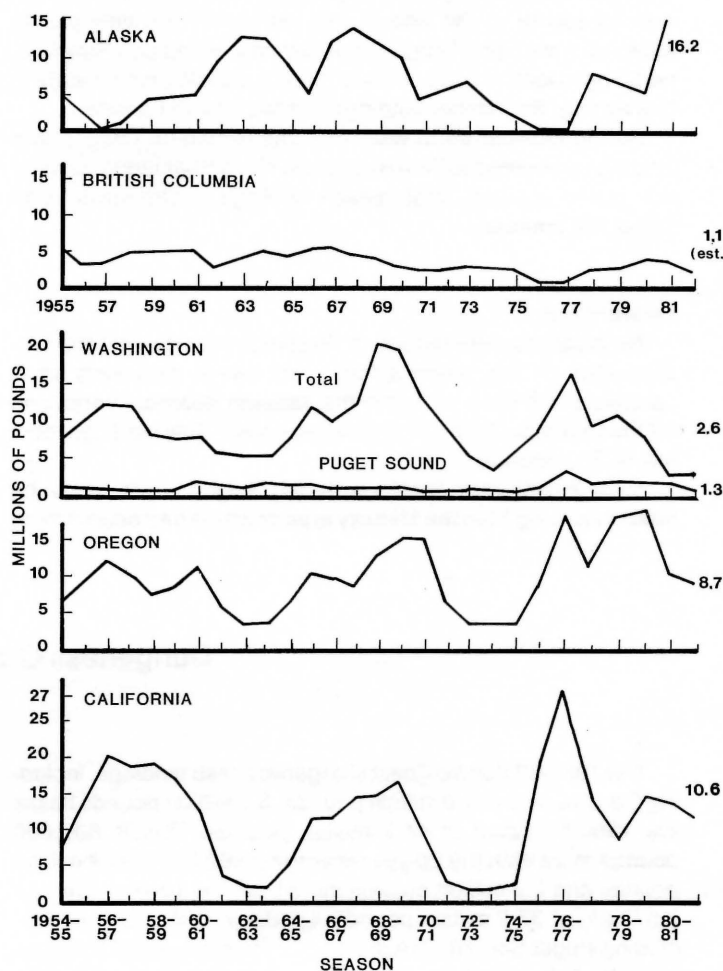


FIGURE 2. Dungeness crab landings by season, 1954-55 through 1982, except Alaska and British Columbia seasons are calendar years; i.e., 1954-55 = 1955.

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Pacific Halibut Fishery in 1982 *

The total catch of Pacific halibut in 1982 was 28.7 million pounds, 3 million pounds more than was taken in 1981. The value of the 1982 catch was \$31.2 million (U.S.) compared to \$26.2 million in 1981. The catch by Canadian vessels fishing in Canadian waters was 5.2 million, while U.S. vessels fishing in U.S. waters caught 23.5 million pounds (Table 1). Landings of halibut by regions of the coast are shown in Table 2.

The halibut catch in Area 2 (south of Cape Spencer, Alaska) was 8.9 million pounds and close to the 9 million-pound catch limit. The catch from Area 2A (Washington and Oregon) was 211,000 pounds, slightly over the 200,000-pound catch limit. Area 2B (Canadian waters) produced 5.2 million pounds, slightly less than the 5.4 million-pound catch limit. In Area 2C (Southeast Alaska), the catch was 3.5 million pounds, slightly over the 3.4 million-pound catch limit.

In Area 3A (Gulf of Alaska from Cape Spencer to Cape Trinity,

*Produced by Richard J. Myhre, International Pacific Halibut Commission.

TABLE 1. Catch of halibut during 1982 and region of the coast (preliminary in 1,000's lb)

Area	Canada	United States	Total
Area 2			
2A	—	211	211
2B	5,236	—	5,236
2C	—	3,485	3,485
Total	5,236	3,696	8,932
Area 3			
3A	—	13,507	13,507
3B	—	4,837	4,837
Total	—	18,344	18,344
Area 4	—	1,442	1,442
Grand Total	5,236	23,482	28,718

Kodiak Island) the catch was 13.5 million pounds, 500,000 pounds below the 14 million-pound catch limit. Area 3B (Cape Trinity to Cape Lutke, Unimak Island) produced 4.8 million pounds, 1.8 million pounds over the 3 million-pound catch limit. The Area 4 (Aleutian Islands and the Bearing Sea) catch was 1.4 million pounds, slightly under the 1.5 million-pound catch limit.

As in 1981, the catch per unit of effort (CPUE) in Southeastern Alaska and in the Gulf of Alaska was substantially higher than the previous year. In Area 2B, on the other hand, CPUE has changed little over the past several years. From 1929 to 1980, there was a high degree of correspondence between the CPUE in Southeastern Alaska and in British Columbia. However, in 1981 and 1982, the CPUE in Southeastern Alaska has been more than double that in Area 2B (British Columbia). At the present time there is no explanation for this phenomenon.

The high CPUE in Alaska waters, combined with an increased fleet size, has resulted in extremely short fishing seasons, particularly in Area 2C (5 days) and Area 3A (11 days). The

North Pacific Fishery Management Council has under consideration a limited entry program for halibut based on the individual quota system. The advantages and the disadvantages of limited entry have been discussed at length by halibut fishermen, and the Council has contracted for a study of limited entry alternatives and their possible implications. The International Pacific Halibut Commission has no authority to limit entry to the halibut fishery, but is cooperating with the Council as needed.

Current stock assessment information indicates that the halibut resource is continuing to improve under the Commission's management policy of holding the commercial catch below the annual surplus production. Stock size and CPUE have increased in Alaskan waters and recruitment of young fish into the commercial catch has improved also. Nevertheless, annual stock productivity is still below the levels of the early 1960's. The loss of production is attributed largely to the high incidental catch of halibut by fisheries targeting on other species. The lost halibut production is costing the halibut fishermen over \$20 million each year in lost income and the citizens of Canada and the United States have a much reduced supply of halibut available.

TABLE 2. Landings of halibut in 1982 by region of the coast (preliminary in 1,000's lb)

Region	Canada	United States	Total
Washington-Oregon	1,521	2,972	4,493
Southern British Columbia	1,546	—	1,546
Northern British Columbia	2,169	—	2,169
Southeastern Alaska	—	7,010	7,010
Central Alaska	—	13,500	13,500
Total	5,236	23,482	28,718

Groundfish Fishery in 1982

Groundfish landed on the Pacific Coast by North American fishermen in 1982 totalled over 456,000 mt (one billion lb), including more than an estimated 5,000 mt by recreational anglers in the United States. This is an increase in the total groundfish catch of approximately 130,000 mt or 41%. Over 95% of the U.S. commercial landings (404,200 mt) were trawl-caught, including 251,800 mt in joint ventures. Other individual gears making significant catches in the U.S. fishery include pots (6,885 mt or 1.7%) and longlines (7,458 mt or 1.8%). The remainder of the U.S. commercial catch (5,529 mt or 1.4%) was taken by such miscellaneous gears as jig, troll, gill net, and shrimp trawl. Recreational fishermen used primarily hook and line gear. In the Canadian fishery, trawl gear took 92% of the catch while pot and long gear captured 6% and 1% respectively.

Commercial Fishery

Pollock, Pacific whiting, and yellowfin sole (flounder) were the most important species in the joint venture fisheries, while

Pacific cod, the other rockfish group and Dover sole were most important to the non-joint venture trawl fisheries. Dover sole

TABLE 1. Trawl landings for all purposes in metric tons (mt) by region for 1981 and 1982 with percent change

Region	1980 mt	1981 mt	% Change
Alaska	8,226	19,814	+ 141
Washington	37,104	41,496	+ 12
Oregon	35,133	37,184	+ 6
California	34,697	33,980	- 2
Joint Venture	139,200	251,808	+ 81
Total U.S.	254,360	384,282	+ 51
Canada (B.C.)	32,025	26,698	- 17
Canada Joint Venture	18,400	21,402	+ 16
Total Canada	50,425	48,100	- 5
Total U.S.-Canada	304,785	432,382	+ 42

production has continued to increase since 1967, and market conditions for this species continued strong in 1982.

Rockfish other than Pacific ocean perch (POP) were again the most important species group within the U.S. shorebased fishery in 1982. However, with the rapid decline in the abundance of widow rockfish, the catch of the other rockfish group has shown the first decline since 1975.

Although British Columbia has traditionally produced most of the Pacific cod, recent increases within the non-joint venture fisheries, as indicated by higher landings in Alaska and Washington, have come from developing domestic fisheries in the Gulf of Alaska and Bering Sea. This trend is expected to continue for one more year in conjunction with the high abundance of Pacific cod off Alaska.

The U.S. landings of sablefish, the major pot and longline species, increased by 60% in 1982 to 20,800 mt for all gear, excluding 139 mt in the joint venture fisheries. Landings of sablefish increased in the U.S. pot and trawl fisheries by 119% and 79% respectively. The availability of small sablefish and a ready market for them stimulated the higher landings in 1982.

Federal and State regulations restricted the catches of sablefish, widow rockfish and Pacific ocean perch in 1982. A precedent setting action closed the U.S. sablefish fishery off Southeastern Alaska on August 2, 1982; and off the U.S. Pacific Coast trip limits were implemented for sablefish and widow rockfish and were reduced further for POP.

For California preliminary data indicate a slight decline in trawl landings but total landings have increased because of increased catches of rockfish and sablefish within the longline and pot fisheries. Trawl landings of petrale sole, English sole and lingcod are down, while Dover sole landings continued slightly upward. The widow rockfish fishery continued to develop in California while declining off Oregon and Washington.

Total Oregon commercial groundfish landings in 1982 were 40,600 mt, 8% above those in 1981. About 37,200 mt, or 92% of the total, were landed by trawlers. Other gears account for an additional 3,400 mt. Large increases in landings of Dover sole, English sole, lingcod and sablefish were largely counteracted by large decreases in landings of Pacific ocean perch, other rockfish, and Pacific whiting. The increased catches of Dover

sole, English sole, and lingcod and more modest increases in other flatfish were in part due to improved market conditions and to a shift of many shrimp fishermen to the trawl groundfish fishery. The decrease in Pacific ocean perch landings was entirely due to the more restrictive trip limits imposed by Oregon and Washington early in 1982, while for widow rockfish a multitude of factors including lower abundance, trip limits, severe weather and fleet distribution contributed to the decline. The reduced catches of widow rockfish are indicated in Table 2 by the 17% drop in other rockfish landings.

Washington's 1982 trawl landings were 45,900 mt representing a 10% increase over 1981. Significant increases in 1982 landings occurred for Dover sole, English sole, Pacific whiting, and sablefish; trawl landings for the remainder of the important food fish species declined. For Pacific cod 85% of the catch landed in Washington was taken in Alaska. Rockfish landings were down 7%, primarily in response to a decline in the abundance of widow rockfish; and Pacific ocean perch landings fell by 55%; reflecting the more severe trip limits. Total landings by all other gears were less in 1982 than during 1981, although pot landings increased due largely to the increased demand for sablefish.

For Alaska developing trawl fisheries, primarily in the Bering Sea, increased landings of Pacific cod by 130%; and pollock catches, primarily adjacent to Kodiak Island, increased Alaska landings for this species by 300%. Abundance of both species remains high. Longline landings increased slightly because of higher sablefish and rockfish catches. Although sablefish stocks remain depressed, higher 1982 prices have encouraged fishery expansion; and U.S. fishermen moved north onto grounds also fished by foreign longliners.

For British Columbia the major changes in the fishery during 1982 were lower landings of Pacific cod, English sole, and rocksole. Decreases in rock sole landings reflect the imposition of trip limits aimed at stock conservation, while decreases in English sole resulted from lower directed fishing effort. Abundance of Pacific cod, as indicated by landings, was lower than in recent years. In part, the decreased effort for some traditional groundfish species resulted because of the increased number of vessels participating in the joint venture fishery.

The joint venture fishery off British Columbia which targeted on Pacific whiting increased by 16%, while the joint venture fishery off the Pacific Coast States increased 56% to 68,400 mt. Although Pacific whiting was the primary target species in this fishery, a small fishery for short-belly rockfish also occurred during the fall of 1982. The joint venture fishery off Alaska increased 92% to 183,400 mt. However the Gulf of Alaska fishery, which targeted exclusively on pollock, increased by 340%. Target species in the Bering Sea joint venture fishery included not only pollock but also yellowfin sole, Pacific cod and Atka mackerel.

Recreational Fishery

Limited data were available for the 1982 recreational fishery. Landings from California and Oregon show a continued increase in catch. Rockfish is again the primary species.

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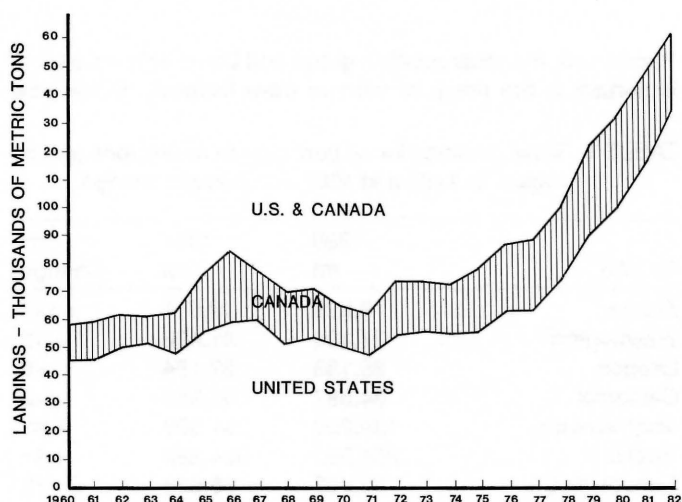


FIGURE 1. Pacific Coast trawl landings of the United States and Canada, excluding joint venture landings.

TABLE 2. Domestic trawl landings (mt) for food, 1981 & 1982 (preliminary) & 10-year mean * (1972-81) by species and region with total commercial landings for all gears

Species or Group		Alaska	Washington	Oregon	California	Total U.S.	British Columbia	Total U.S. & Canada
Petrale sole	1981	—	356	884	751	1,991	290	2,281
	1982	—	1,250	561	2,141	365	2,506	
	% change	—	-7	+41	-25	+8	+26	+10
	10-yr mean	—	898	980	1,360	3,238	374	3,612
English sole	1981	trace	870	729	1,616	3,215	1,500	4,715
	1982	trace	1,060	965	1,184	3,209	563	3,772
	% change	—	+22	+32	-27	—	-62	-2
	10-yr mean	—	1,192	1,005	1,807	4,004	1,039	5,043
Dover sole	1981	—	1,930	5,232	9,225	16,387	1,245	17,632
	1982	—	2,710	7,950	9,662	20,322	894	21,216
	% change	—	+40	+52	+5	+24	-28	+20
	10-yr mean	—	1,242	3,117	9,766	14,125	974	15,099
Rock sole	1981	trace	141	10	3	154	1,059	1,213
	1982	trace	107	30	10	147	743	890
	% change	—	-24	+200	+243	-5	-30	-27
	10-yr mean	—	232	8	5	245	1,395	1,640
Pacific cod	1981	7,354	9,954	46	—	7,354	6,676	24,030
	1982	17,164	11,136	105	—	28,405	4,646	33,051
	% change	+133	+12	+128	—	+64	-30	+37
	10-yr mean	—	4,931	291	—	5,222	8,435	13,657
Lingcod	1981	trace	811	906	1,191	2,908	1,729	4,637
	1982	—	660	1,335	703	2,698	2,847	5,545
	% change	—	-19	+47	-41	-7	+65	+20
	10-yr mean	—	1,112	660	1,376	3,148	1,328	4,476
P. ocean perch	1981	7	678	836	11	1,532	5,103	6,635
	1982	11	428	500	22	961	5,403	6,364
	% change	+25	-37	-40	+100	-37	+6	-4
	10-yr mean	—	1,881	484	50	2,415	2,883	5,298
Other rockfish	1981	1	13,797	23,779	16,216	53,793	4,487	58,280
	1982	7	12,879	19,465	15,879	48,230	4,444	52,674
	% change	+600	-7	-18	-2	-10	-1	-10
	10-yr mean	—	8,002	6,238	13,152	27,392	3,190	30,582
Sablefish	1981	6	570	1,303	3,549	5,428	233	5,661
	1982	123	1,762	3,945	3,868	9,698	245	9,943
	% change	+1,950	+209	+126	+9	+79	+5	+76
	10-yr mean	—	361	666	2,637	3,664	332	3,996
Pacific whiting	1981	—	936	162	—	1,098	5,691	6,789
	1982	—	2,639	1	—	2,640	2,375	5,015
	% change	—	+182	-99	—	+140	-58	-26
	10-yr mean	—	80	165	—	245	713	958
Walleye pollock	1981	558	941	—	—	1,499	1,251	2,750
	1982	2,284	160	—	—	2,444	924	3,368
	% change	+309	-83	—	—	+63	-26	-22
	10-yr mean	—	280	—	—	280	1,187	1,467
Total above species	1981	7,927	30,984	33,887	32,562	105,360	29,264	134,624
	1982	19,589	33,871	35,546	31,889	120,895	23,449	144,344
Total all species	1981	8,226	37,104	35,133	34,697	115,160	32,025	147,185
	1982	19,814	41,496	37,184	33,980	132,474	26,698	159,172
	% change	+141	+12	+6	-2	+15	-17	+8

*Alaska excluded from 10-year mean.

TABLE 3. Catch (mt) by species group and region of joint venture fisheries in 1982 with 1981 totals

	Bering Sea	Gulf of Alaska	Total Alaska ¹	California Oregon & Washington ²	Total U.S.	Canada (B.C.) ³	Total
Pacific whiting	—	—	—	67,540	67,540	20,889	88,429
Pollock	54,604	74,282	128,886	—	128,886	400	129,286
Yellowfin sole	17,414	—	17,414	—	17,414	—	17,414
Other flounders	9,218	18	9,236	trace	9,236	—	9,236
Pacific cod	13,591	194	13,785	—	13,785	—	13,785
Atka mackerel	12,475	—	12,475	—	12,475	—	12,475
Pacific ocean perch	28	3	31	1	32	trace	32
Other rockfish	1	—	1	855	856	85	941
Sablefish	124	1	125	14	139	—	139
Other fish	1,111	324	1,435	10	1,445	28	1,473
Total 1982	108,567	74,882	183,388	68,420	251,808	21,402	273,210
Total 1981	78,487	16,955	95,442	43,758	139,200	18,400	157,600
% Change	+38	+341	+92	+56	+81	+16	+74

¹Foreign Nations Involved: West Germany, Japan, South Korea, Poland, Taiwan, U.S.S.R.²Foreign Nations Involved: Bulgaria, Greece, Poland, U.S.S.R.³Foreign Nations Involved: Poland, U.S.S.R.

TABLE 4. Longline landings (mt) by major species and region in 1981 and 1982

Region	Sablefish		Lingcod		Rockfish		Pacific cod		Other *		Total	
	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982
Alaska	2,515	2,674	10	8	206	234	221	157	10	—	2,962	3,073
Washington	673	658	40	46	65	69	1	2	628	428	1,407	1,203
Oregon	700	590	10	7	94	88	trace	trace	1	3	805	688
California	750	304	200	25	1,000	2,165	—	—	—	—	1,950	2,494
Total U.S.	4,638	4,226	260	86	1,365	2,556	222	159	639	431	7,124	7,458
Canada (B.C.)	380	238	—	—	—	—	—	—	513*	705*	893	943
Grand Total	5,018	4,464	260	86	1,365	2,556	22	159	1,152	1,136	8,017	8,401

*Includes dogfish; only Canada reported dogfish separately: 513 mt in 1981 and 705 mt in 1982. In 1981, Washington reported 601 mt of dogfish and Alaska and Oregon each reported traces.

TABLE 5. Pot landings (mt) by major species and region in 1981 and 1982

Region	Sablefish		Lingcod		Rockfish		Other		Total	
	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982
Alaska	25	68	2	—	2	—	16	—	45	68
Washington	1,305	1,617	1	trace	6	2	2	2	1,314	1,621
Oregon	277	1,456	3	3	4	7	2	trace	286	1,466
California	1,500	3,700	—	—	—	30	—	—	1,500	3,730
Total U.S.	3,107	6,841	6	3	12	39	20	2	3,145	6,885
Canada (B.C.)	3,275	3,368	—	—	—	—	—	—	3,275	3,368
Grand Total	6,382	10,209	6	3	12	39	20	2	6,420	10,253

TABLE 6. Landings (mt) from miscellaneous gears by major species and region in 1981 and 1982

Region	Sablefish		Lingcod		Rockfish		Pacific cod		Other		Total	
	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982
Alaska	4	—	4	21	41	15	30	28	14	1	103	65
Washington	—	—	246	349	781	480	—	—	205	343	1,762 ¹	1,609 ¹
Oregon	87	47	130	103	1,039	1,099	8	13	66	5	1,330	1,267
California	—	—	25	—	1,000	1,788	—	—	—	271	1,025	2,588 ²
Total U.S.	91	47	415	473	2,861	3,382	38	41	285	620	4,220	5,529
Canada (B.C.)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Grand Total	91	47	415	473	2,861	3,382	38	41	285	620	4,220 ¹	5,529 ^{1,2}

¹Includes 530 mt in 1981 and 437 mt in 1982 of dogfish reported by Washington.²Includes 529 mt of flounder reported by California in 1982.

TABLE 7. Estimated recreational landings (mt) by major species and region in 1981 and 1982

Region	Rockfish		Lingcod		Flatfish		Pacific cod		Other species		Total	
	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982	1981	1982
Alaska	108	n/a	n/a	n/a	n/a	n/a	n/a	n/a	394*	n/a	302	n/a
Washington	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Oregon	477	524	109	100	8	6	—	—	18	15	612	646
California	2,500	2,600	300	350	50	50	—	—	—	—	2,850	3,000
Canada (B.C.)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

*Pacific halibut

Salmon and Steelhead Sport Catches in 1981 in the Pacific Coast States

The estimated total sport catch of salmon and steelhead during 1981 in Alaska, Washington, Idaho, Oregon and California was 1,939,291 fish (Table 1). This catch was composed of 1,642,941 salmon and 296,250 steelhead. The total 1981 salmon harvest was down 22% from the 10-year average (1971-80) while the harvest of steelhead was down by only 3% over the same 1971-80 average (Table 2).

Alaska

Alaska anglers harvested an estimated 379,541 sea-run salmon and 3,264 steelhead in 1981. The salmon harvest was

down 34% from the 1980 record year, but was 35% above the 10-year average. The steelhead harvest was down 32% from 1980, the previous record year, but was still 32% above the 1971-80 10-year average.

The total marine harvest of 152,206 fish included 25,938 chinook salmon, 49,435 coho salmon, 5,020 sockeye salmon, 68,001 pink salmon, 3,783 chum salmon and 29 steelhead. The total freshwater harvest of 230,599 fish included 33,059 king or chinook salmon, 76,231 coho salmon, 74,803 sockeye salmon, 32,997 pink salmon, 10,274 chum salmon and 3,235 steelhead.

Washington

Marine salmon angler trips for the 1981 Washington recreational salmon fishery were estimated at 1.4 million. This was well below both the 10-year average (1971-80) of 1.7 million and the 1980 total of 1.8 million angler trips. Chinook catches from the marine areas were estimated at 272,300 (7% below the 1980 catch) while the freshwater harvest provided 25,500 chinook. The marine catch of coho was 446,000 fish (1% above the 1980 catch) with a freshwater harvest of 15,300. Sport anglers caught an estimated 40,700 pink salmon in the marine fishery and 4,400 in freshwater. The steelhead catch for 1981 was estimated at 125,086, which was 3% below the 10-year average.

TABLE 1. Salmon and steelhead sport catches in 1981

State	Chinook	Coho	Pink	Other salmon	Steelhead	Total catch
Alaska	58,997	125,666	100,998	93,880	3,264	382,805
Calif.	83,700	9,700	—	—	unavailable	93,400
Idaho	0	—	—	—	13,000	13,000
Oregon	98,000	215,000	—	6,000 ^a	155,000	474,000
Wash.	297,800	461,300	45,100	46,800 ^b	125,086	976,086
Total	538,497	811,666	146,098	146,680	296,350	1,939,291

^aChum and pink salmon.^bIncludes jack salmon not identified by species.

TABLE 2. Salmon and steelhead sport catches (1,000's of fish) for the Pacific Coast States, 1971 to 1981, and 10-year (1971-80) averages

Year	Alaska		California		Idaho		Oregon		Washington		Total	
	Salmon	Steel-head	Salmon ¹	Steel-head	Salmon	Steel-head	Salmon	Steel-head	Salmon ²	Steel-head	Salmon	Steel-head
1971	98.8	1.2	255.0		3.5	17.5	463.7	197.5	1,344.8	173.6	2,165.8	389.8
1972	127.2	1.3	245.0		6.5	13.5	403.0	157.9	1,138.9	167.4	1,920.6	340.1
1973	221.7	0.9	230.0		9.5	10.5	406.6	162.2	1,095.4	148.3	1,963.2	321.9
1974	184.9	1.0	234.0		1.5	3.0	465.0	166.8	1,320.4	110.0	2,205.8	280.8
1975	178.0	2.2	125.0		0.0	0.0	415.9	186.4	1,399.4	92.9	2,118.3	281.5
1976	200.6	2.3	139.0		0.0	2.0	669.0	118.3	1,749.6	89.1	2,758.2	211.7
1977	381.1	3.7	154.0		3.5	13.0	372.2	145.1	1,191.4	100.0	2,102.2	261.8
1978	525.4	4.3	128.0		7.0	11.5	386.9	200.6	1,107.9	163.1	2,155.2	379.5
1979	361.2	3.0	138.7		0.0	5.7	278.8	122.4	1,123.9	94.8	1,902.6	225.9
1980	530.5	4.8	107.0		0.0	9.1	417.3	203.7	852.9	151.1	1,907.6	368.7
10-year average	280.9	2.5	175.6		3.2	8.6	427.8	166.1	1,232.5	129.0	2,120.0	306.2
1981	379.5	3.3	93.4		0.0	13.0	319.0	155.0	851.0	125.1	1,642.9	296.4

¹Ocean fishery data only.²Only marine catches through 1978.

Idaho

The run of chinook salmon to Idaho in 1981 was up 75% from the record low set in 1980 but was still well below spawning escapement requirements. Therefore, no chinook salmon fishing season was provided for the third consecutive year. An estimated 19,072 anglers fished 98,510 days to harvest 12,960 steelhead in 1981. This harvest was 51% above the 10-year average.

Oregon

The Oregon sport catch of salmon and steelhead (marine and freshwater) was estimated to be 319,000 and 155,000 respectively. The salmon catch consisted of 215,000 coho, 98,000 chinook, and 6,000 chum and pink salmon. The salmon catch was 24% below the 1980 catch and 25% below the 1971-80 10-year average. The steelhead catch was also down in 1981, showing a 24% decrease from 1980 and a 7% decrease from the 10-year average.

California

The 1981 ocean sport catch estimate of 93,400 salmon was down 13% from the 1980 harvest of 107,000 and down 47% from the 1971-80 10-year average of 175,600. The 1981 chinook landings of 83,700 fish were down only slightly from 1980 (3%) but were down significantly from the 1971-80 10-year average (38%). The 1981 coho harvest of 9,700 fish was 54% below the 1980 harvest and 76% below the 10-year average.

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Troll Salmon Fishery in 1982

Preliminary estimates of the 1982 troll catch of combined chinook and coho salmon for Alaska, British Columbia, Washington, Oregon and California totalled 56.2 million pounds round weight compared to the 10-year (1972-81) average of 61.7 million pounds (Table 1). Coastwide, chinook landings amounted to about 27.3 million pounds in 1982 compared to the 1972-81 10-year average of 29.7 million pounds. Coho salmon totals were about 28.9 million pounds compared to the 10-year average of 32.0 million pounds (Figure 1).

Regulations played an important role in the 1982 troll salmon landings. In Alaska, the chinook fishery was regulated by quota. The Pacific Fishery Management Council promulgated another complex set of regulations for 1982.

From the U.S./Canada border to Leadbetter Point, Washington, fishing for all salmon except coho, was open from May 1 to 31. The fishery was then open for all salmon from July 15 until the coho quota of 204,000 fish was reached. Minimum legal sizes were 28" for chinook and 16" for coho.

From Leadbetter Point to Cape Falcon, Oregon, fishing for all salmon, except coho, was open from May 1 to 31. The fishery was then open for all salmon from July 1 until the coho quota of 89,000 fish was reached. Minimum legal sizes were 28" for chinook and 16" for coho.

From Cape Falcon to Cape Blanco, Oregon, fishing for all

species, except coho, was open from May 1 to June 15. During the period from June 1 to 15, special gear was required. The fishery was then open for all salmon from July 1 to September 5 or until the quota of 488,000 coho was reached. If the coho quota was reached prior to September 5, chinook fishing using special gear would be allowed. The period September 6 to October 31, for all species except coho, was open, using barbless hooks. Minimum legal sizes were 26" for chinook and 16" for coho.

From Cape Blanco to the Oregon/California border, fishing for all species, except coho, was open from May 1 to June 8. During the period June 1 to 8, special gear was required. The fishery was then open for all salmon from July 1 to September 5 or until the quota of 488,000 coho was reached. If the coho quota was reached prior to September 5, chinook fishing with special gear would be allowed. The period September 6 to October 31, for all species except coho, was open, using barbless hooks. Minimum legal sizes were 26" for chinook and 16" for coho.

The California season for all salmon, except coho, was open from May 1 to 31. The all species season was open from June 1 to 15. The season re-opened on July 1 and ran through September 30 for all species. Minimum legal sizes were 26" for chinook and 22" for coho.

TABLE 1. Estimated landings of troll-caught chinook and coho salmon in 1982 and 10-year (1972-81) average (round weight in thousands of pounds, all 1982 data are preliminary)

Region	Chinook		Coho		Total	
	1982	10-year average	1982	10-year average	1982	10-year average
Alaska	4,700	4,900	10,000	5,500	14,700	10,400
British Columbia	9,600	12,500	13,000	14,600	22,600	27,100
Washington	1,800	2,900	2,200	4,300	4,000	7,200
Oregon	2,700	2,700	3,100	5,300	5,800	8,000
California	8,500	6,700	600	1,600	9,100	8,300
Total	27,300	29,700	28,900	32,000	56,200	61,700

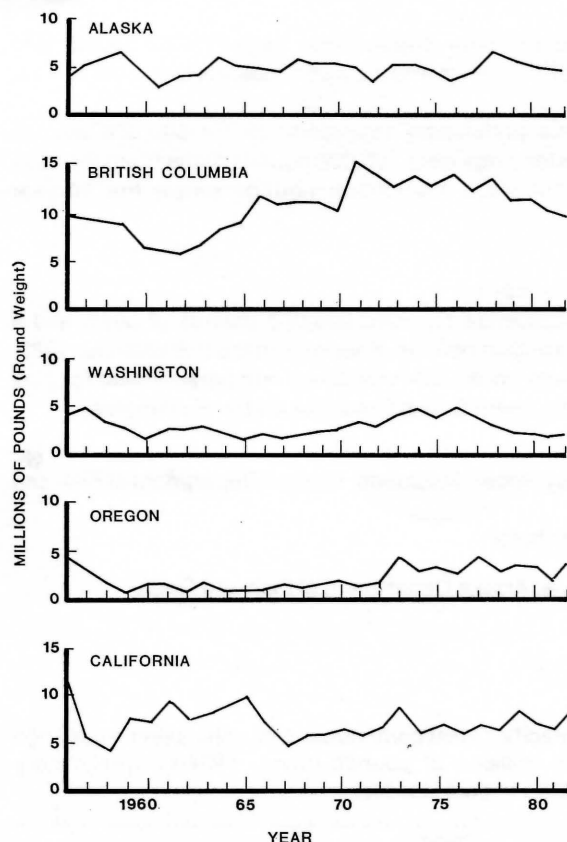


FIGURE 1. Pacific Coast annual landings of troll caught chinook and coho salmon, 1956-81 and preliminary 1982.

TABLE 2. Pacific Coast commercial troll chinook salmon landings in millions of pounds round, 1956-82 (preliminary data in parentheses)

Year	Alaska	British Columbia	Washington	Oregon	California	Total
1956	3.9	9.8	4.0	4.4	11.3	33.4
1957	5.1	9.7	4.8	3.0	5.3	27.9
1958	5.7	9.1	3.3	1.8	4.1	24.0
1959	6.7	8.7	2.7	0.5	7.5	26.1
1960	4.8	6.4	1.7	1.5	7.0	21.4
1961	2.9	6.0	2.5	1.4	9.3	22.1
1962	3.9	5.9	2.4	0.7	7.2	20.1
1963	4.1	6.8	2.8	1.6	7.9	23.2
1964	6.0	8.5	2.1	0.7	8.7	26.0
1965	5.1	8.8	1.3	0.7	9.3	25.2
1966	4.8	11.4	2.0	0.9	6.9	26.0
1967	4.3	10.4	1.7	1.3	4.4	22.1
1968	5.8	10.8	1.9	1.1	5.3	24.9
1969	5.1	10.8	2.3	1.4	5.6	25.2
1970	5.1	9.9	2.5	1.9	6.1	25.5
1971	4.9	15.2	3.1	1.2	5.7	30.1
1972	3.3	14.1	2.6	1.5	6.2	27.6
1973	5.0	12.7	3.8	4.0	8.7	34.2
1974	5.1	13.5	4.3	2.6	5.8	31.3
1975	4.4	12.6	3.3	3.0	6.6	29.9
1976	3.5	13.8	4.4	2.2	5.7	29.6
1977	4.7	12.1	3.3	4.0	6.6	30.7
1978	6.8	13.2	2.4	2.2	6.0	30.6
1979	6.0	11.1	1.9	3.0	7.9	29.9
1980	5.6	11.6	1.8	2.5	6.4	27.9
1981	4.9	10.2	1.4	1.8	6.8	25.1
1982	(4.7)	(9.6)	(1.8)	(2.7)	(8.5)	(27.3)
1972-81						
Mean	4.9	12.5	2.9	2.7	6.7	29.7

Chinook

Alaska preliminary troll chinook landings are 4.7 million pounds round weight. This is 200,000 pounds less than the 1981 landings and also 200,000 pounds less than the 10-year average (Figure 2).

British Columbia preliminary troll chinook landings are 9.6 million pounds round. This is 600,000 pounds less than in 1981 and 2.9 million pounds less than the 10-year average.

Washington preliminary troll chinook landings are 1.8 million pounds round. This was 400,000 pounds higher than the 1981 landings and 1.1 million pounds lower than the 10-year average.

Oregon preliminary troll chinook landings are 2.7 million pounds round. This was attained in spite of no fishing north of Cape Falcon after the noon, July 8 closure. This figure was 900,000 pounds higher than the 1981 landings and equal to the 10-year average.

California preliminary troll chinook landings are 8.5 million pounds round. This is 1.7 million pounds higher than the 1981 landings and 1.8 million pounds above the 10-year average.

Coho

Alaska preliminary troll coho landings are 10.0 million pounds round weight. This is 3.5 million pounds higher than the 1981 landings and 4.5 million pounds above the 10-year average (Figure 3).

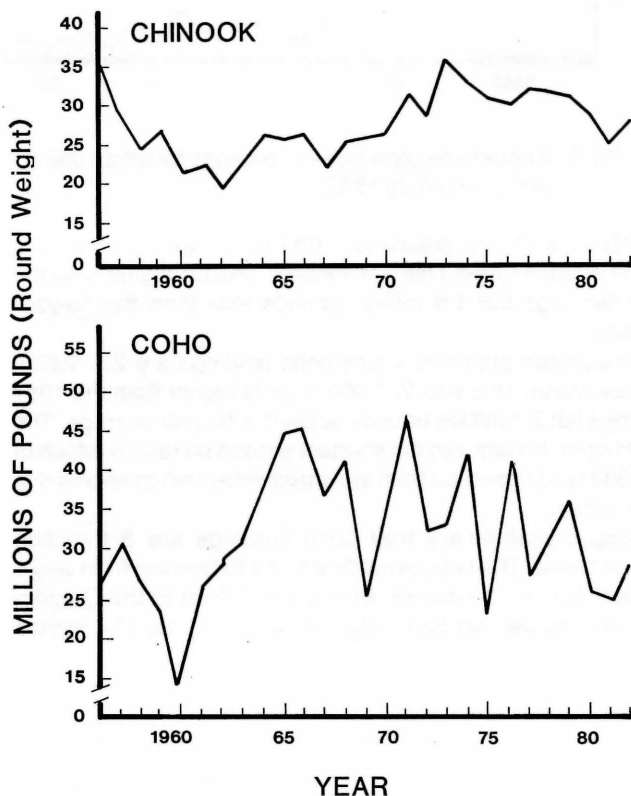


FIGURE 2. Annual troll chinook salmon landings by area, 1956-81 and preliminary 1982.

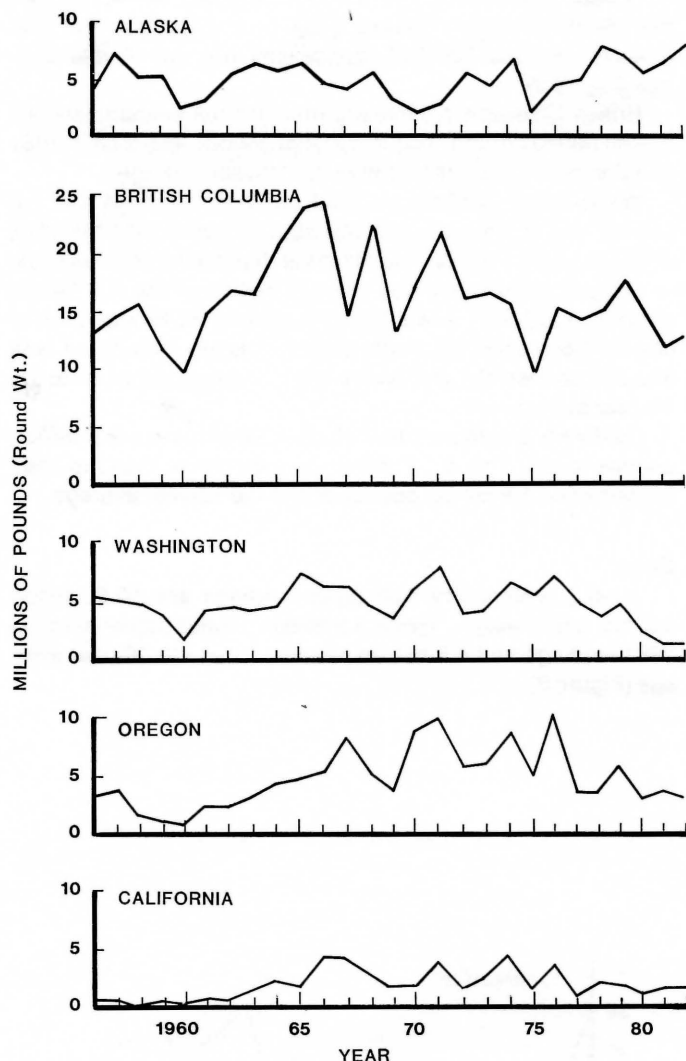


FIGURE 3. Annual troll coho salmon landings by area, 1956-81 and preliminary 1982.

British Columbia preliminary troll coho landings are 13.0 million pounds round. This is 1.7 million pounds higher than the 1981 landings but 1.6 million pounds less than the 10-year average.

Washington preliminary troll coho landings are 2.2 million pounds round. This was 200,000 pounds higher than the 1981 landings but 2.1 million pounds below the 10-year average. The Washington trollers had the shortest season on record. Much of the 1982 landings came from the unregulated Indian segment of the troll fleet.

Oregon preliminary troll coho landings are 3.1 million pounds round. The season north of Cape Falcon ran from July 1 to noon July 8. The season from Cape Falcon to the Oregon/California border ran from July 1 to noon July 12. The quotas

were met at this time. The landings were 700,000 pounds less than the 1981 landings and 2.2 million pounds below the 10-year average.

California preliminary troll landings are 600,000 pounds round. The landings were 100,000 pounds higher than the 1981 landings but were 1.0 million pounds below the 10-year average.

Pink and Sockeye

British Columbia reported 600,000 pounds of pinks and a record 12.3 million pounds of sockeye in the troll catch for 1982. This year was on the off-cycle (even-numbered years) for pink salmon in southern British Columbia and in Washington.

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TABLE 3. Pacific Coast commercial troll coho salmon landings in millions of pounds round, 1956-82 (preliminary data in parentheses)

Year	Alaska	British Columbia	Washington	Oregon	California	Total
1956	3.8	12.9	5.3	3.2	0.5	25.7
1957	7.5	14.4	5.0	3.9	0.6	31.4
1958	5.2	15.6	4.7	1.3	0.1	26.9
1959	5.8	11.7	3.7	1.0	0.3	22.5
1960	2.5	9.3	1.5	0.8	0.1	14.2
1961	3.6	14.8	4.2	2.3	0.6	25.5
1962	5.2	16.4	4.7	2.2	0.4	28.9
1963	6.3	16.1	4.0	3.0	1.2	30.6
1964	5.7	20.5	4.6	4.2	2.2	37.2
1965	6.2	23.5	7.4	4.8	1.8	43.7
1966	4.7	24.3	6.1	5.2	4.0	44.3
1967	4.2	14.1	6.2	8.3	3.9	36.7
1968	5.8	22.6	4.5	5.1	2.7	40.7
1969	3.1	12.7	3.3	3.6	1.4	24.1
1970	2.2	17.3	6.1	8.7	1.5	35.8
1971	3.1	21.4	7.9	10.1	3.7	46.2
1972	5.7	15.9	3.9	5.6	1.2	32.3
1973	4.5	16.2	4.3	5.9	2.3	33.2
1974	6.7	15.6	6.4	8.3	4.3	41.3
1975	1.5	9.5	5.1	4.7	1.3	22.1
1976	4.3	15.3	7.2	10.4	3.3	40.5
1977	4.9	14.4	4.3	3.0	0.2	26.8
1978	8.0	14.9	3.2	3.2	1.5	30.8
1979	7.1	17.7	4.2	5.3	1.2	35.5
1980	5.4	15.3	2.2	2.5	0.3	25.7
1981	6.5	11.3	2.0	3.8	0.5	24.1
1982	(10.0)	(13.0)	(2.2)	(3.1)	(0.6)	(28.9)
1972-81						
Mean	5.5	14.6	4.3	5.3	1.6	32.0

Scallop Fishery in 1982

The scallop fishery (*Patinopecten caurinus*) that developed primarily off of Oregon in 1980 declined greatly in 1982. Oregon landings were 1.5 million pounds as compared to 16.7 million in 1981. Washington landed 20,000 pounds and California 3,072 pounds as compared to 4.0 million and 300,000 pounds respec-

tively in 1981. Alaska maintains a scallop fishery which is reported upon by the State of Alaska. As a result of the essential close out of this fishery off Oregon, California, and Washington, this report is being discontinued effective this year.

Shrimp Fishery in 1982

Pacific Coast pandalid shrimp landings by the United States and Canada totalled 46.1 million pounds in 1982. This is the lowest production since 1966 and represents a decline of 88.7 million pounds from the previous 10-year average (Table 1). Combined landings from Washington, Oregon and California reached 27.7 million pounds, well below the 10-year average of 45.7 million pounds. Oregon landings of 18.5 million pounds were well below the 1981 level and the 10-year average. Alaska landings reached only 17.2 million pounds, far below the 10-year average and 1981 level. Washington landings totalled 5.0 million pounds, well below the 10-year average and 1981 landings. California landings of 4.2 million pounds were above the 1981 level but below the 10-year average. British Columbia landings were estimated at 1.2 million pounds which is below both the 10-year average and 1981 level.

TABLE 1. Annual Pacific Coast pandalid shrimp landings and 10-year averages by State and Province (in 1000's of pounds) 1972-1982

Year	Alaska	British Columbia	Washington	Oregon	California	Total
1972	83,830	794	1,582	20,861	2,434	109,501
1973	119,964	1,729	5,271	24,516	1,240	152,720
1974	108,275	2,644	9,325	19,968	2,338	142,550
1975	98,535	1,728	10,167	23,893	4,993	139,316
1976	129,011	7,723	9,261	25,392	3,400	174,787
1977	116,891	6,176	11,803	48,580	15,633	199,083
1978	73,293	3,460	12,298	56,997	13,163	159,211
1979	50,916	1,578	12,135	29,579	4,922	99,130
1980	52,568	1,500	12,629	30,152	5,050	101,899
1981	28,029	1,841	10,055	25,918	3,670	69,513
Average	86,131	2,917	9,452	30,586	5,684	134,771
1982	17,186	1,200*	5,000	18,500	4,206*	46,100*

*Preliminary data

Conditions Affecting the Fishery

The number of vessels in the shrimp trawl fishery continued to decline. Combined shrimp trawl fleets of Washington, Oregon and Alaska were only about half the record 1980 level. Ex-vessel prices for trawl-caught shrimp remained moderately high with the price per pound ranging from 22 to 32¢ in Alaska to 50 to 60¢ off Washington, Oregon and California. Price negotiations kept most of the Oregon fleet tied up from the April 1 opening until mid-month. Adoption of the maximum 160 count per pound regulation by Washington and Oregon reduced effort and catch levels in certain areas and some citations were issued. Catch per unit effort (CPUE) remained generally low off both Oregon and Washington. Most major production areas off Alaska re-

mained closed to promote stock rebuilding. Generally CPUE rates in most of the Western Gulf of Alaska areas open to fishing were at very low levels, commensurate with the continued decline in shrimp stocks and extremely high fish abundance.

California

Ocean shrimp (*Pandalus jordani*) landings totalled 4.2 million pounds compared to the final landings of 3.7 million pounds in 1981. Fishermen received 50¢ per pound from the April 1 opening to July 27 when the price was raised to 55¢ per pound. On September 20, the price was raised to a season high of 60¢ per pound.

Landings from the ports of Eureka and Crescent City (PMFC Area 92) totalled 3.8 million pounds, up 1.2 million pounds from 1981. Vessels fishing off Oregon and landing in Crescent City caught 156,957 pounds and 42,315 pounds in PMFC Areas 88 and 86, respectively.

Reported landings from Fort Bragg (PMFC Area 94) were only 12,014 pounds. Production from this area has been below the 10-year average of 455,000 pounds for four years since the record landing of 2.1 million pounds in 1978.

No landings were reported from Bodega Bay (PMFC Area 96). Two vessels reported making a total of five exploratory tows with no success. The area has remained unproductive since 1977 when 2.0 million pounds were landed.

Landings from Morro Bay-Avila (PMFC Area 98) totalled approximately 435,653 pounds, far short of the 1.1 million pounds landed last season.

Oregon

Ocean shrimp landings totalled 18.5 million pounds, 29% less than the 25.9 million pounds landed in 1981 and well below the 10-year average of 30.6 million pounds. The number of vessels continued to decline with only 164 vessels in the fishery compared to 245 in 1981. Many vessels switched to groundfish trawling before or early in the 1982 season. The season started slowly after the April 1 opening date due to price negotiations which kept most of the fleet tied up until mid-month. Fishermen and processors agreed on 50¢ per pound. The price remained stable through July until count per pound improved and demand caught up with supply. Dwindling catches and lowered inventories brought the price up to 55¢ per pound by August and 60¢ per pound during October. Twenty processors operated shrimp machines in 1982.

Proportionately more of the 1982 catch came from areas off Oregon than in 1981. Oregon-based vessels caught 4.5 million pounds or 24.3% of the season total off Washington compared to 29.7% or 7.7 million pounds in 1981. Catches off California in

1982 remained low, totalling 278,000 pounds. A total of 13.7 million pounds or 74.0% of the 1982 catch was taken off Oregon. In 1981, 17.6 million pounds or 67.9% of the catch was taken off Oregon.

Catches declined in most PMFC areas while CPUE (pounds per hour-single-rigged equivalents) remained at low levels or improved slightly in some areas. The Coos Bay-Cape Blanco shrimp grounds (PMFC Area 86) produced 47.6% of the Oregon catch or 8.8 million pounds compared to 11.9 million pounds in 1981. One- and two-year-old shrimp dominated the catch throughout the season. Two-year-old shrimp were more plentiful at the beginning of the season, ranging from 26.6 to 28.6% of the catch in numbers in April. By June, however, the percentage of 2-year-olds decreased, ranging from 2.0 to 8.5%, while 1-year-olds increased, ranging from 89.0 to 97.4% of the catch. Counts ranged from 135 to 155 shrimp per pound in April and from 155 to 247 shrimp per pound in June.

Landings from Cape Blanco-California line (PMFC Area 88) improved modestly totalling 726,000 pounds compared to 595,000 pounds in 1981. The CPUE averaged 235 pounds per hour compared to 237 pounds per hour in 1981. Although volume was low the count per pound was 91 shrimp at the beginning of the season. April age composition was 7.4% 1-year-old, 64.5% 2-year-old, and 28.1% 3-year-old shrimp.

Northern Oregon (PMFC Areas 82 and 84) shrimp catches accounted for 4.1 million pounds of the season total compared to 6.1 million pounds in 1981. The CPUE and catch increased slightly in PMFC Area 82 averaging 148 pounds per hour for the 3.0 million pounds taken. In 1981 480,000 pounds were caught at an average rate of 142 pounds per hour. The CPUE in PMFC Area 84 averaged only 108 pounds per hour compared to 157 pounds per hour in 1981. Landings also declined to 1.3 million pounds, well below the 1981 harvest of 5.6 million pounds.

April age composition in PMFC Area 82 was 48.6% 1-year-old, 34% 2-year-old and 17.4% 3-year-old shrimp, which corresponded to the 118 shrimp per pound. By July the percentage of 1-year-olds increased to 84.5% and the count was 138 shrimp per pound. April age composition in PMFC Area 84 was 22.4% 1-year-old, 43.4% 2-year-old and 34.3% 3-year-old shrimp, which provided the best count of the season at 85 shrimp per pound. The poorest count occurred in June (122 shrimp per pound) when age composition was 65.3% 1-year-old, 24.5% 2-year-old and 10.2% 3-year-old shrimp. The highest percentage of 1-year-old shrimp, 81.6%, occurred in August but additional growth reduced the count to 115 shrimp per pound.

Oregon-based vessels fishing off Washington produced 3.2 and 1.3 million pounds in PMFC Areas 72 and 74 (Destruction Island and Grays Harbor beds), respectively. Less than 1,000 pounds were taken off Willapa Bay in PMFC Area 75. Catches in PMFC Areas 72, 74 and 75 were 4.8 and 2.2 million pounds and 71,000 pounds respectively, in 1981.

April age composition in PMFC Area 72 was 14.0% 1-year-old, 70.7% 2-year-old and 15.3% 3-year-old shrimp, which equated to 120 shrimp per pound. In May through August the count ranged from 149 to 206 shrimp per pound, and the percentage of 1-year-old shrimp ranged from 42.4 to 82.2%. Age composition for April in PMFC Area 74 was 23.0% 1-year-old, 52.0% 2-year-old and 25.0% 3-year-old shrimp; count per pound averaged 111 shrimp. In May through September the percentage of 1-year-old shrimp ranged from 39.2 to 83.9% and corresponding counts per pound ranged from 110 to 170 shrimp.

Catches from California waters were similar to last year's. Only 278,000 pounds were taken from PMFC Area 92 in 1982,

compared to 237,000 in 1981.

Over half of the season's catch was taken during the first three months of the fishery. Oregon adopted a maximum count per pound rule prohibiting delivery of shrimp with counts exceeding 160 shrimp per pound. The regulation, which applies only to landings exceeding 3,000 pounds of shrimp, resulted in some citations. By adopting the April 1 to October 31 season and maximum count per pound rule, Oregon now conforms to two of the three management options recommended by the Pacific Fishery Management Council for uniform management in Oregon, Washington and California. Oregon continued to conduct analysis of the effects of 1½ inch mesh size before deciding on the mesh-size management option. To support the Washington and California minimum mesh-size requirements, Oregon adopted reciprocal rules prohibiting landing of shrimp caught off the other two States, by gear not legal in those States.

Washington

Ocean shrimp landings for the 1982 season totalled 5.0 million pounds, 5.1 million pounds less than in 1981. This decline was partially due to: 1) establishment of a shorter season, April 1 through October 31; 2) a decrease in effort due to many vessels changing to a more profitable fishing; and 3) a new regulation establishing a maximum allowable count per pound of 160 whole shrimp. This regulation initially was not enforced until Oregon passed an identical regulation at the end of May. The new regulation discouraged fishermen from targeting on low quality small shrimp in the Destruction Island area (PMFC Area 72) as they have done in previous years. A total of 33 vessels (including two single-rigged) made 5 or more landings of shrimp, a substantial decrease from the 66 vessels with 5 or more landings during the 1981 season.

Fifty-three percent of the total landings or 2.6 million pounds were caught on the Destruction Island grounds, down from 4.9 million pounds landed in 1981. Average monthly counts per pound, obtained from biological samples, ranged from 121 to 174. The CPUE for double-rigged vessels averaged 269 pounds per hour, a drop from the 1981 average of 361 pounds per hour. In June the CPUE was 180 pounds per hour but increased to 332 pounds per hour during August. The grounds received little fishing effort in April and especially during July when the area had a large percentage of small shrimp. Effort increased greatly in August and September, after the shrimp had grown to an acceptable size, when 800,000 pounds and 1.2 million pounds were landed, respectively. Landings in October were low due to adverse weather conditions that kept fishermen off the grounds the last half of the month.

The Grays Harbor area (PMFC Area 74) produced 2.0 million pounds or 41 percent of the total landings, down from 4.8 million pounds landed in 1981. The CPUE for double-rigged vessels averaged 216 pounds per hour for the entire season. The lowest average monthly CPUE was in May at 169 pounds per hour and the highest was in April at 270 pounds per hour. The average monthly count per pound ranged from 102 in April to 151 in August. During June and July the Grays Harbor area received the majority of the fishing effort as that was where shrimp below 160 count per pound could be found.

The Willapa Bay area (PMFC Area 75) effort in 1982 declined again with landings of only 18,480 pounds compared to 184,000 pounds in 1981. The CPUE averaged 127 pounds per hour for double-rigged vessels, down from 245 pounds per hour in 1981. The April average count per pound was 195, the highest average for the entire Washington coast.

The catch off Oregon by Washington-based vessels was

227,000 pounds. Part of this catch (206,000 pounds) came from PMFC Area 82, where CPUE averaged 245 pounds per hour for double-rigged vessels. No shrimp caught in PMFC Areas 86 or 88 were landed in Washington during the 1982 season.

British Columbia

Pandalid shrimp landings (all species combined) totalled an estimated 1.2 million pounds compared with 1.8 million pounds in 1981. Landings were well below the 10-year average of 2.9 million pounds and represented production from both the trawl and trap fisheries for shrimp. Due to problems with the development of a new sales slip data processing system, the 1982 estimated catch is inaccurate for those fisheries which did not market products through a registered plant.

Landings from the trawl fishery were estimated to be 850,000 pounds of which the majority was taken from the Tofino and Nootka grounds (PMFC Area 66). The trap fishery for prawns (primarily *P. platyceros*) occurs coastwide and landings from all PMFC areas were estimated to be 310,000 pounds or about one-half the 1981 level.

Alaska

Landings of primarily *Pandalus borealis* totalled only 17.2 million pounds, the lowest catch in 18 years and 69 million pounds below the previous 10-year average. Kodiak, Chignik and south Alaska stocks remain severely depressed, with most historic production areas having been closed to fishing for several seasons to promote stock rebuilding. Stocks in these districts continue to be managed under a strategy that stipulates the minimum abundance level each stock must attain before fishing is allowed. In 1982, the Alaska Board of Fisheries established an experimental area along the Alaska Peninsula, adjacent to Kodiak Island where the shrimp fleet is allowed to fish unrestricted unless catch reporting or small shrimp becomes a problem. This area was set aside as a 2- to 4-year experiment to determine if shrimp stocks managed in this manner react any differently from those in the more intensively managed areas. Cook Inlet's major production area, Kachemak Bay continues to be managed under a quota system that spreads the harvest throughout the year in order to utilize all segments of the stock. The shrimp trawl fishery in Yakutat Bay of southeastern Alaska is now managed under a quota system, adopted by the Alaska Board of Fisheries, which provides for a maximum of 30,000 pounds of harvest each month of the open shrimp season. Trawl shrimp fishery landings declined in all areas except Prince William Sound and southeastern Alaska. Pot shrimp fishery landings reached new records in the latter two areas and totalled 495,000 pounds statewide. Presently all major trawl production areas except the experimental area mentioned earlier are managed under a quota system.

Kodiak district (PMFC Area 54) landings reached only 10.9 million pounds, 8.2 million pounds less than in 1981 and about 27 million pounds below the 10-year average. The Alitak Bay—Olga Bay complex was the major production area with 4.5 million pounds. The experimental area along the Alaska Peninsula, which includes a non-quota area from Aniakchak Bay to Cape Douglas produced about 3.6 million pounds, all of which came from Kukak, Puale and Wide Bays. The Wide Bay fishery

was closed twice during the seasons as small shrimp (less than 2-years-old) predominated catches. Two other Kodiak areas (Chiniak Bay and North Afognak) contributed significantly to catches, producing about 1.4 million pounds each. Former major production areas such as Twoheaded Island, Kiliuda, Ugak and Marmot Bays remained closed to fishing due to depressed stocks. Approximately 39 vessels participated in the Kodiak fishery and received 27¢ per pound for their catch.

Chignik, south Alaska Peninsula and Aleutian (PMFC Area 55) shrimp landings were only 342,000, about 2 million pounds less than 1981. Landings from PMFC Area 55 peaked in 1977 at 78.9 million pounds. All of the 1982 catch came from the Aleutian district as the Chignik and South Peninsula districts remained closed to promote stock rebuilding. Despite 2- to 4-year-closures, stocks in former major production areas such as Pavlof Bay, Unga Strait-Balboa Bay, Stepovak Bay, Mitrofanina Island and Chignik and Kujulik Bays, remain extremely low and show no signs of recovery.

Cook Inlet (PMFC Area 53) trawl landings of 4.1 million pounds declined for the second year due to reduced quotas in Kachemak Bay which reflect lower abundance levels as determined from stock assessment surveys. The number of vessels in the trawl fishery remained at the record level of 21 reached in 1981. Ex-vessel prices for trawl shrimp ranged from 22 to 32¢ per pound depending on fish contamination. Pot fishery landings of 169,000 pounds were lower than the previous two seasons and well below the 1974 record of 682,000 pounds. This fishery lands primarily coonstripe shrimp (*Pandalus hypsinotus*) which in recent seasons have mostly been sold by the fishermen directly to local consumers.

Prince William Sound (PMFC Area 52) landings were above average, totalling 525,000 pounds. Trawl landings of 347,000 pounds were about average. Most of this catch was landed in Kodiak by Kodiak-based vessels. Pot fishery landings, primarily spot shrimp (*Pandalus platyceros*), reached a new record of 178,000 pounds, exceeding newly established quotas.

Southeastern Alaska (PMFC Area 51) landings reached 1.3 million pounds. Trawl landings of 1.1 million pounds were near average and came primarily from the Duncan Canal-Kah Sheets Bay area. Pot fishery landings reached a new record of 138,000 pounds.

Most major Gulf of Alaska stocks remain severely depressed and are not expected to be open for fishing in 1983. Stock assessment surveys indicate that stocks have remained stable or have declined the least in areas where there are fewest predacious fish. The 1983 trawl harvest in the Gulf of Alaska is expected to be less than in 1982, with only the Cook Inlet and southeastern Alaska production expected to remain near current levels.

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Foreign Fishing Activities off the Pacific Coast in 1982

WASHINGTON, OREGON and CALIFORNIA

In 1982, only two foreign nations, Bulgaria and the Soviet Union, were involved in groundfish fisheries off Washington, Oregon, and California. No more than 18 foreign vessels (fishing, processing, or support vessels) operated at any one time off the coast, compared with 41 in 1981. But whereas the foreign trawl catch was about 10 percent of its 1981 level, joint venture receipts increased by more than 50 percent from the previous year and more than doubled 1980 levels. Traditionally, Pacific whiting (hake) has been the dominant target species in both foreign trawl and joint venture operations. However, a small experimental joint venture fishery for shortbelly rockfish developed for the first time in 1982.

(NOTE: The species amounts in this section combine reports from foreign vessels and from National Marine Fisheries Service foreign fishing observers. Consequently, the amounts given here may not be identical with those provided by a foreign nation or joint venture company.)

Foreign Trawl Fishery

Sanctions against Poland (in 1981 for the imposition of martial law in that country) and the Soviet Union (in 1980 for the invasion of Afghanistan) effectively eliminated the major foreign trawl component off California, Oregon and Washington; although 35,500 metric tons of whiting were available for foreign harvest in 1982, only 10,000 mt were requested, and by only one nation, Bulgaria. Four Bulgarian trawlers caught about 7,100 mt (71 percent) of their allocation of whiting. This fishery was terminated in late September, about a month before the end of the season, because the incidental catch limit for sablefish was exceeded.

Joint Venture Trawl Fishery

Joint venture operations in which foreign vessels receive and process U.S.-harvested groundfish were not prohibited by political sanctions because U.S. fishermen benefit from the markets made available by off-shore processing. (Pacific whiting deteriorates rapidly once caught and must be processed as soon as possible in order to be suitable for human consumption.) Although the number of nations participating in joint ventures dropped from four in 1981 to two in 1982, receipt of whiting increased almost 24,000 mt to 67,500 mt, 67.5 percent of the 100,000 mt available for joint venture processing and 96 percent of the amount requested by both nations. In total, 15 foreign processing vessels received whiting from about 20 U.S. trawlers. (The four Bulgarian processing vessels also fished in the directed trawl fishery.)

A limited exploratory joint venture for shortbelly rockfish was conducted off California (north of 36°38' N. latitude) in September. About 640 mt of shortbelly rockfish (64 percent of the 1,000 mt available for joint venture processing) were received by one Soviet processor from two U.S. trawlers.

Enforcement and Surveillance

While enforcing the foreign fishing regulations, Special Agents of the National Marine Fisheries Service accompanied the U.S. Coast Guard on 42 aerial and 2 surface patrols. Almost

70 boarding inspections of foreign vessels were conducted and logbooks were scrutinized again at the end of the season. In 1982, 7 enforcement actions were taken.

ALASKA

The Magnuson Fishery Conservation and Management Act (MFCMA) continued to regulate foreign fishing in the 3- to 200-mile fisheries conservation zone (FCZ) off Alaska for the sixth successive year. Four foreign nations (Japan, South Korea, West Germany, and Taiwan) were given allocations to fish in Alaskan waters during 1982. Vessels from those nations operated under MFCMA plans managing the Bering Sea and Aleutian Islands groundfish fishery, Gulf of Alaska groundfish fishery, and Bering Sea snail fishery. In addition, the Soviet Union and Poland participated in joint venture operations with U.S. vessels, although they did not receive allocations to fish.

A total of 554 foreign vessels operated off Alaska in 1982, 36 vessels less than in 1981. Of these, 378 operated under MFCMA management plans and 176 operated in the high seas salmon fishery regulated by the International North Pacific Fishery Commission (INPFC). The total number of foreign vessels present monthly ranged from 150 to 484. Total foreign catch in 1982 was 1.34 million mt (2.9 billion pounds) of groundfish, salmon, and snails. Vessels operated a total of 67,065 days. Effort off Alaska declined 6 percent from 1981, while catch declined approximately 11 percent. The Bering Sea and Aleutian Islands area accounted for 87 percent of effort and 89 percent of catch.

Japanese Fishing

In 1982, Japan continued to dominate foreign fishing off Alaska. A total of 487 Japanese vessels operated in Alaskan waters in 1982, 8 more than last year. Of these, 220 vessels operated independently under the MFCMA, including 122 stern trawlers, 22 longliners, 2 snail pot vessels, 71 transport vessels, and 3 tankers. Also operating under the MFCMA were 58 pair trawlers, 15 Danish seiners, and 12 stern trawlers, who fished for 5 pollock factoryships and 1 yellowfin sole factoryship. In addition, 4 factoryships with 172 gillnet vessels conducted a high seas salmon fishery under INPFC regulations as in past years. The number of vessels present per month varied from 122 to 444; peak activity occurred in June and July during the high seas salmon fishery.

Effort by Japanese vessels totalled 58,482 days (160.2 years), or 87 percent of total foreign effort off Alaska. This effort resulted in a total catch of 1.07 million mt (2.37 billion pounds), or 80 percent of total foreign catch. As usual, pollock was the predominant species and represented 78 percent of the Japanese harvest. Other species caught were flounders (13 percent) and Pacific cod (4 percent). The remaining 5 percent included salmon, snails, and other groundfish species. Ninety percent of the total catch was taken from the Bering Sea and Aleutian Area with 89 percent of total effort.

Independent Japanese fishing vessels (122 trawlers, 22 longliners, and 2 snail pot vessels) operated in all of Alaska's fishing grounds throughout 1982. The trawlers fished 28,244 days (89 percent in the Bering Sea and Aleutians) and caught

primarily pollock and flounders. Longliners fished for Pacific cod and sablefish a total of 4,381 days; 71 percent of the effort occurred in the Gulf of Alaska. Effort by trawlers increased 2.5 percent over 1981, while longliner effort decreased 7 percent. The snail fishery off Alaska was continued by 2 pot vessels that fished from July to September. The vessels landed 236 mt of snails in 100 days, operating in the north central Bering Sea northwest of the Pribilof Islands.

Japan's factory fleets conducted operations in the same areas and months as in previous years. The high seas salmon fleets fished in June and July north and south of the western Aleutians and in the central Bering Sea. The 4 factoryships and 172 gillnetters operated a total of 9,900 days. Five factory fleets (with approximately 15 catcher vessels per fleet) fished for pollock in the central Bering Sea from May to October. An additional factory fleet with seven catcher vessels fished for yellowfin sole June to November in the Bering Sea east and southeast of the Pribilof Islands.

South Korean Fishing

In 1982, South Korea retained its position as the second most important foreign nation fishing off Alaska. A total of 41 vessels were employed, including 31 stern trawlers, 2 longliners, 1 factoryship, and 7 transport vessels. These vessels landed 18 percent of total foreign catch, or approximately 241,787 mt of pollock, flounders, Atka mackerel, and other species. Effort by Korean vessels totalled 6,433 days (10 percent of total foreign effort). South Korean effort decreased 6 percent from 1981, while catch decreased less than 1 percent from 1981 levels. Fishing in the Bering Sea and Aleutians accounted for 67 percent of the Korean effort and 79 percent of the catch.

Fishing by Other Nations

Taiwan and West Germany conducted relatively minor fishing operations off Alaska in 1982. Vessels from these two nations collectively took 2 percent of the total foreign catch with 1 percent of the total foreign effort. Four trawlers and one transport vessel from Taiwan fished in the Bering Sea and Aleutians during 1982. The vessels caught 6,842 mt of pollock in 569 vessel days. West Germany was represented off Alaska by one stern trawler. The vessel operated 331 days and took 16,431 mt of pollock in the Bering Sea and Aleutians.

Joint Venture

Joint venture activities continued to expand in 1982 and involved 6 foreign nations: Japan, South Korea, Soviet Union, Poland, West Germany, and Taiwan (a new participant in 1982). A total of 47 foreign vessels (19 South Korean, 16 Soviet, 6 Japanese, 3 Polish, 1 West German, and 1 Taiwanese) worked with U.S. vessels; that was 15 foreign vessels more than last year. Most of the vessels, except those from the Soviet Union and Poland, also fished under their nation's allocation. The 1982 catch was almost twice the amount taken in 1981, with foreign vessels receiving 183,400 mt of pollock, flounders, Pacific cod, and Atka mackerel from U.S. trawlers. Sixty percent of the catch was taken from the Bering Sea and Aleutians.

Enforcement and Surveillance

Joint NMFS-Coast Guard patrols in 1982 covered a total of approximately 463,300 miles, including 295,400 aircraft miles and 167,900 vessel miles. NMFS Special Agents were present during 17 percent of the aircraft miles and 35 percent of the vessel miles. Patrol units reported 4,924 sightings of foreign vessels. NMFS and Coast Guard personnel conducted 209 inspections of Japanese vessels, 73 of South Korean vessels, 13 of Taiwanese vessels, 4 of Polish vessels, 1 inspection of a Soviet vessel, and 2 inspections of the West German vessel.

Infractions detected during boardings or aerial patrols may result in the issuance of a citation (written warning), violation (assessment of civil penalty), or in the seizure of a vessel for flagrant violations. In 1982, enforcement effort resulted in: 42 citations, 21 violations, and 3 seizures of Japanese vessels; 17 citations and 4 violations by South Korean vessels; 10 citations, 2 violations, and 2 seizures of Taiwanese vessels; 3 violations by Soviet vessels; and 1 citation issued to a Polish vessel. Penalties paid for these violations and seizures totalled \$565,000 as of March 1, 1983; a third of the cases are still open.

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