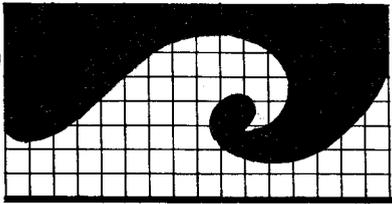
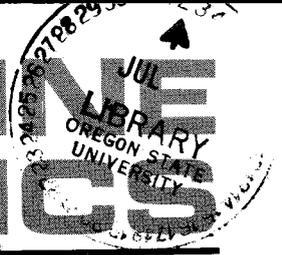


E 55  
op. 2  
p. 289



# Studies in MARINE ECONOMICS



## Pricing and Marketing Oregon Seafoods

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Oregon's seafood processing, distribution, and retailing industry adds approximately \$36 million in value to the \$16 million landed value of Oregon seafood.<sup>2</sup> This industry not only affects Oregon consumers, but involves distributors, retailers, and consumers in a number of other states and countries such as California, Illinois, Colorado, England, and France.

There are more than 40 varieties of fish and crustaceans landed at Oregon ports and more than 400 kinds of seafoods marketed in Oregon.<sup>3</sup> For illustrative purposes the following five seafood products are discussed in this study:

- fresh troll-caught silver salmon, for convenience referred to here as *salmon*;
- hand-picked Dungeness crab meat frozen in #10 tins, *crab meat*;
- frozen Dungeness crab in the shell, *shell crab*;
- fresh fillet of Dover sole, *sole*;
- cooked and peeled frozen shrimp meat in #10 tins, *shrimp*.

These five seafoods are generally representative of all salmon, crab, groundfish, and shrimp landed in Oregon and constitute 50.46% of the landed value of all Oregon seafoods.<sup>4</sup> The major seafood excluded is Albacore tuna, which constituted 45.59% of the landed value of all Oregon seafoods in 1968.<sup>5</sup>

The harvesting, processing, distributing, and retailing activities of salmon, crab meat, shell crab, sole, and shrimp as defined above are first briefly described. The pricing and marketing share of the consumer's seafood dollar for these same five seafoods is then discussed.

### PRODUCTION AND MARKETING

As previously indicated, seafoods in Oregon may appear in over 400 different product forms, each of which may involve a different production, processing, distribution, and/or retailing activity. Nevertheless, some generalizations can be made in describing the production and marketing of the five narrowly defined seafoods being considered here. Table 1 summarizes the activities involved, transportation method, and product form for salmon, crab meat, shell crab, sole, and shrimp as it moves from the ocean to the consumer.

Most processors are located in the major local ports where seafood is landed. Price agreements, and in some cases delivery agreements, exist between the processor and fisherman for salmon and sole. These agreements are usually negotiated between fishermen's associations and processors and are influenced largely by market demand, inventories, and expected production. Fishermen's associations representing crab and shrimp also bargain with processors for price.

Some salmon is handled by the processor and some is purchased by a licensed dealer and shipped directly to the distributor. Crab meat, shell crab, sole, and shrimp are processed almost exclusively in the coastal plants, although some processing is now possible at inland points with recent improvements in refrigerated truck transport.

Processing of crab meat, sole, and shrimp is only partially mechanized. Therefore, a large percentage of crab, sole, and shrimp processing costs can be attributed to hand labor.<sup>6</sup> Processors store fresh and/or processed seafood in frozen and/or chilled form until it is shipped to distributors or retailers. Labor, storage, and packaging comprise a large percentage of processing costs.

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<sup>2</sup> Based on 1968 Oregon Fish Commission data and prices obtained from a personal survey of Oregon coastal processors, Portland distributors, and Portland and Corvallis retailers during 1969. This estimate assumes that the value of seafood imported into the state for processing, distributing, and/or retailing is equal in value to that exported for processing, distribution, and retailing.

<sup>3</sup> Oregon Fish Commission and Portland Fish Company. The 400 kinds of seafoods marketed include various product forms, some imported, such as kippered salmon and kippered salmon tips.

<sup>4</sup> Based on 1968 Oregon Fish Commission data.

<sup>5</sup> Based on Oregon Fish Commission data. The 1968 tuna landings exceeded landings in the previous five years by as much as \$5 million.

<sup>6</sup> A survey of costs in coastal processing plants by the author indicated that hand labor was frequently the largest single cost category identified by the firm's accountant.

Table 1. Generalized Production and Marketing Activities for Five Oregon Seafoods  
Direction of Seafood Movement →

Seafood <sup>6</sup>	Fisherman Activity	Transport Method	Product Form	Processor Activity	Transport Method	Product <sup>7</sup> Form	Distributor Activity	Transport Method	Product <sup>7</sup> Form	Retailer Activity	Product Form
Salmon	catch & clean	boat	fresh	remove fins and/or head and chill or freeze	air truck	chilled or frozen	store, remove fins and/or head	air truck	chilled frozen	cut into steaks or baking sections and package	fresh or frozen
Crab Meat	trap & sort	boat	alive in sea water	store, cook, extract meat, pack in can, freeze	truck	frozen	store	truck	frozen	repack & store	fresh or frozen
Shell Crab	trap & sort	boat	alive in sea water	store, cook, & freeze	air truck	fresh or frozen	store	air truck	fresh or frozen	repack & store	fresh or frozen
Sole	catch & sort	boat	chilled	fillet, package, chill, or freeze	air truck	fresh or frozen	store and/or repackage	air truck	fresh or frozen	repack & store	fresh or frozen
Shrimp	catch & sort	boat	fresh	cook, re-move shell, pack in cans, & freeze	truck	frozen	store	truck	frozen	repack & store	fresh or frozen

<sup>6</sup> Seafood is as follows: salmon, fresh troll-caught silvers; crab meat, Dungeness crab in #10 tins; shell crab, frozen Dungeness; sole, fresh fillet of Dover; shrimp, cooked and peeled Oregon meat.

<sup>7</sup> The consumer may buy at these points in the marketing process as well as from the retailer. In this study, it is assumed that consumers buy from the retailer.

The quantity of seafood being shipped by air is on the increase as is the use of long-haul refrigerated trucks. This is especially true for seafoods such as salmon and crab.

Processors will sometimes negotiate daily with brokers in the prime market areas<sup>9</sup> in determining seafood prices. Therefore, processor-distributor, processor-retailer, and distributor-retailer prices will fluctuate from day to day and will trend up or down over the season, depending upon portside landings, imports, inventories, and demand.

The distributor takes orders from his retailer customers and must sometimes repackage the sole, crab, or shrimp to meet the retailers' specifications. The distributor frequently does some salmon cutting to meet local retail specifications. Retail orders are taken out of storage, made up, and delivered by truck to the local retailers.

Further processing at the retail level frequently involves a professional butcher and/or the assistance of the distributor's sales agents.

### PRICING

Prices differ considerably for each sector of the marketing system and will vary from port to port and from season to season. Seasonal price variability is largely due to variation in landings, which in turn is partly dependent upon length of season, weather during the season, and the availability of the seafood in the ocean.

Price variability among ports is due in part to the relative bargaining positions of fishermen and processors in that port and in some cases the port's proximity to market areas and other major ports. Many Oregon ports are geographically isolated and physically limited in the number of

boats and volume of seafood that can be handled. Pricing in such ports tends to be more independent of general price trends than might otherwise be the case.

Prices paid by the consumer are quite different than those received by the fisherman, but the product is also quite different in both form and location. Each sector of the marketing system (processor, distributor, and retailer) invests in the product to change its form and location and sustains some risk in doing so. In the ideal situation each sector should receive a price differential (price received less price paid per unit of product) sufficient to offset the investment in changing product form and location, some compensation for risk, and sufficient reward for management to insure a continuation of the services provided. In reality, the price differentials for some seafood products appear to be much greater and for others much less than would occur in the ideal situation.<sup>10</sup> This is probably due to a combination of a lack of adequate management information, inflexibility in firm operation and/or management, and the tendency to use "loss leaders." "Loss leaders" are products sold at prices below cost to promote the sale of highly profitable correlated products. These "non-ideal" price differentials may also be attributable to gross differences in market power and resulting bargaining strength relative to the firm's suppliers of seafood and/or seafood customers.<sup>11</sup>

A popular method of viewing price differentials is to consider the percent share of the consumer's dollar accru-

<sup>10</sup> Although specific data were not available to substantiate it, long-term price variability and comments of various industry people tend to support this conclusion.

<sup>11</sup> Although this can only be stated as a hypothesis at this time, research is being initiated on the subject.

<sup>9</sup> Los Angeles, Seattle, and San Francisco.

ing to each market sector. The USDA in its Marketing and Transportation Situation reports calculates these shares on the basis of units of consumed products through to the producer level. For example, USDA estimates that 45% of the beef sold "on the hoof" is actually consumable meat. The USDA credits the producer with \$.62 per pound of consumable meat rather than with the \$.28 per pound of

live beef actually received  $\left(\frac{$.28}{45\%} = \$.62\right)$ . This permits

the marketing share and the producer's share of the consumer's dollar to sum to 100% and assumes that all "waste" has occurred before the product enters the marketing sector (i.e., that the producer is selling only consumable meat and not live beef).

Although this approach has its merits, the producer and marketing sector shares of the consumer's seafood dollar is calculated here by attributing the "waste" or yield loss to the sector where it occurs. For example, the crab price received by fishermen during 1968-69 averaged \$.30 per pound, which constituted 10% of the consumer's dollar. Although the processor paid \$.30 per pound for the live crab, his net price paid per pound for the 23% of the crab he eventually is able to market was \$1.30. The difference between \$1.30 and the processor's selling price of \$1.75 constitutes the processor's share of the consumer's dollar, or 15%. All crab meat consumer dollar shares will not add to 100% in this case, the remainder being attributable to the yield loss. This method of calculating seafood consumer dollar shares allows for a more detailed look at each marketing sector and the impact of yield losses on each sector's share. This is illustrated in Table 2 for salmon, crab meat, shell crab, sole, and shrimp and for the retailer, distributor, processor, and fisherman. Table 2 also gives the prevailing prices received by each of these sectors during the spring and summer of 1969. For example, during 1969 the consumer was paying approximately \$.79 per pound for Dungeness crab in the shell in the retail market. The retailers received \$.79 per pound after having paid the distributor \$.56 per pound for the crab and therefore received 29% of the consumer's dollar. The distributor, in turn, paid \$.43 for the crab which he sold for \$.56, and therefore received 15% of the consumer's dollar. The processor paid \$.30 per lb. to the fisherman and received

\$.43 per lb. from the distributor for an 11% share. The fisherman obtained a 38% share.<sup>12</sup>

The yield or percentage of marketable meat for crab meat, sole, and shrimp is less than 31%. The processor, for example, must buy more than three pounds of fresh sole at \$.09 per pound to produce one pound of fillets. The processor in effect is paying \$.30 per pound for marketable fillets if no value is assumed for the remainder of the sole. Table 3 illustrates the percentage yield used in calculating the percentage share of the consumer's dollar shown in

Table 2. This calculation is made as follows:  $\frac{\text{price paid}}{\text{yield incurred}} = \text{price per pound of marketable product}$ . It is assumed that the distributor removes fins from the salmon, when in fact the processor may do this. Also, since the (troll) fisherman always cleans the salmon before landing at dockside, he incurs an 86% yield.

With respect to the percentage share of consumer's seafood dollar, there is a greater variation among the five seafoods for the fisherman than for the processor, greater variation for the processor than for the distributor, and greater variation for the distributor than for the retailer. This phenomenon reflects the different functions of each of these sectors and the differences in processing, packaging, etc., required to get different seafoods to the consumer in desirable form. For example, the fisherman receives 9% and 10% of the consumer's dollar for sole and crab meat respectively, and 49% of the consumer's salmon dollar. Sole and crab meat require considerable processing and handling before they reach the consumer, while salmon requires little. The marketing sector adds more to the value of sole and crab meat through changing its form and appearance than to salmon. Likewise, the retailer handles each of the five seafoods in a similar manner and therefore adds about the same value to each. Also, all seafoods must compete for cooler space on an equal basis. The distributor must treat shrimp in a can differently than fresh or frozen crab in a shell, and thereby adds a different value to each. There are also considerable differences in the way that each of the five seafoods are processed and harvested.

<sup>12</sup> Wholesale and retail prices were obtained from a telephone survey of two wholesalers and five retailers in Corvallis and Portland during the spring and summer of 1969. Fisherman prices are based on Fish Commission of Oregon data.

Table 2. Retailer, Distributor, Processor, and Fisherman Prices and Share of the Consumer Seafood Dollar with Yield Losses Attributed to Each Sector Where It Occurs<sup>13</sup>

Seafood <sup>14</sup>	Retailer		Distributor		Processor		Fisherman	
	Price <sup>15</sup> Received	% Share of Consumer \$	Price <sup>15</sup> Received	% Share of Consumer \$	Price <sup>15</sup> Received	% Share of Consumer \$	Price <sup>15</sup> Received	% Share of Consumer \$
Salmon	\$.99	24	\$.75	11	\$.60	11	\$.49	49
Crab Meat	2.89	31	2.00	9	1.75	15	.30	10
Shell Crab	.79	29	.56	15	.43	11	.30	38
Sole	.99	32	.67	14	.53	23	.09	9
Shrimp	2.79	36	1.80	5	1.65	37	.14	5

<sup>13</sup> Yields occurring in each sector were divided into the price paid for the seafood, giving price paid per pound of marketable seafood. The difference between this price and the price actually received from the sale of the seafood is then expressed as a percentage of the consumer's dollar. The total percentage does not add to 100% because some value has been allowed to "leak" out of the system with the yield loss. This "leakage" occurs where prices actually paid are less than prices paid per pound of marketable seafood.

<sup>14</sup> Seafood is as follows: salmon, fresh troll-caught silvers; crabmeat, Dungeness in #10 tins; shell crab, frozen Dungeness; sole, fresh fillet of Dover; shrimp, cooked and peeled Oregon meat.

<sup>15</sup> Prices are based on a 1969 spring and summer telephone survey of three processors, two distributors, and five retailers in Portland and Corvallis, Oregon.

COMPARISON WITH OTHER MEATS

Table 4 shows the retail price, producer price, and marketing share and producer share of five seafoods compared with four non-seafood meats.

**Table 3. Percentage Yield of Five Seafoods at the Fisherman, Processor, and Distributor Level<sup>16</sup>**

Seafood <sup>17</sup>	Percentage Yield For		
	Distributor	Processor	Fisherman
Salmon	94	100	86
Crab Meat	100	23	100
Shell Crab	98	87	100
Sole	100	30	100
Shrimp	100	23	100

Again, the marketing shares and the producer shares do not add to 100%. The difference is attributable to yield losses as explained earlier. The average marketing share for the five seafoods shown is greater than for the four non-seafood meats (60.6% vs. 43.25%), while the producer's share for seafood is less than for non-seafood meats (22.20% vs. 35.25%).

Table 5 illustrates the same retail prices for the same products as Table 4 with the producer value, producer share, and marketing share calculated by the USDA method as explained earlier.

SUMMARY

Oregon's seafood processing and marketing industry produced over \$52 million worth of seafood in 1968 by adding \$36 million worth of dressing, cleaning, packaging, freezing, transporting, storing, displaying, and selling to the \$16 million worth of seafood landed at Oregon ports. The weighted average share of the consumer's dollar received by retailers for the five seafoods is 29%, by distributors 13%, by processors 17%, and by fishermen 30%. The share of the consumer's dollar to each industry sector varies with the type of seafood. For example, these percentages range from 5%, the distributor and fisherman's share of the consumer's shrimp dollar, to 49%, the fisherman's share of the consumer's salmon dollar.

The yields incurred in processing seafoods range from a low of 23% to a high of 81%. These yields have a significant effect upon the distribution of the marketing shares.

In comparison with beef, pork, lamb, and chicken, the seafood marketing sector receives a larger share of the consumer's dollar than does the agricultural marketing sector, with the exception of salmon where the marketing share is less than for chicken. The reverse is true for the producer, with the exception of salmon where the fisher-

<sup>16</sup> Yield refers to the percent of material purchased (or caught) that can be marketed in the form as described (see footnote <sup>17</sup> below). This data was obtained from three Oregon processors and research conducted by the Otter Trawl Commission. Crab and shrimp percentages will vary as much as 5% depending upon the condition of the shellfish at landing and worker skill. Sole yield ranges from 27% to 30% depending upon the skill of the worker.

<sup>17</sup> Seafood is as follows: salmon, fresh troll-caught silvers; crabmeat, Dungeness in #10 tins; shell crab, frozen Dungeness; sole, fresh fillet of Dover; shrimp, cooked and peeled Oregon meat.

**Table 4. Marketing Share and Producer's Share of the Consumer Dollar, Seafood Compared With Other Meats<sup>18</sup>**

Food <sup>19</sup>	Retail Price	Marketing Share	Producer Price	Producer Share
	(\$)	%	(\$)	%
Salmon	.99	46	.49	49
Crab Meat	2.89	55	.30	10
Shell Crab	.79	55	.30	38
Sole	.99	69	.09	9
Shrimp	2.79	78	.14	5
Beef	.96	35	.28	29
Pork	.70	44	.29	41
Lamb	1.01	43	.26	26
Chicken	.42	51	.19	45

<sup>18</sup> Prices are based on a 1969 spring and summer telephone survey of five retailers in Portland and Corvallis and USDA "Marketing and Transportation Situation," August, 1969. Marketing shares do not add to 100% for reasons explained in footnote <sup>3</sup>, Table 2.

<sup>19</sup> Food is as follows: salmon, fresh troll-caught silvers; crab meat, Dungeness in #10 tins; shell crab, frozen Dungeness; sole, fresh fillet of Dover; shrimp, cooked and peeled Oregon meat; beef, choice USDA grade; pork, hogs; lamb, choice USDA grade; chicken, whole fryers.

**Table 5. Marketing Share and Producer's Share of the Consumer's Dollar, Seafood Compared With Other Meats**

Food <sup>21</sup>	Retail Price	Marketing Share	Producer Value <sup>22</sup>	Producer Share
	(\$)	%	(\$)	%
Salmon	.99	48	.52	52
Crab Meat	2.89	55	1.30	45
Shell Crab	.79	56	.35	44
Sole	.99	70	.30	30
Shrimp	2.79	78	.61	22
Beef	.96	35	.62	65
Pork	.70	44	.39	56
Lamb	1.01	43	.58	57
Chicken	.42	51	.20	48

<sup>20</sup> The USDA calculates its marketing share under the assumption that the producer is selling marketable meat and not live beef. For example, USDA estimates that 45% of the beef sold "on the hoof" is consumable meat. The producer is credited with \$.62 per lb. consumable meat rather than the \$.28 per lb. of live beef which in effect transfers the yield loss to the producer.

$$\left( \frac{$.28}{45\%} = $.62 \right)$$

<sup>21</sup> See Table 4, footnote 2.

<sup>22</sup> A term used by USDA which is equivalent to the price per pound of marketable product.

man receives a larger share of the consumer's dollar than does the beef, pork, lamb, and chicken producer, and shell crab where the fisherman receives a larger share than the beef and lamb producer. There is also more variability in marketing and producer shares with respect to the seafoods than there is with non-seafood meats. Marketing shares for the five seafoods range from 46% to 78%, a spread of 32 percentage points, while for the four non-seafood meats this spread is 16 percentage points. At the producer level this spread is 44 percentage points for five seafoods and 19 percentage points for the four non-seafood meats.