# *Quality of Frozen Seafoods and Seafood Products in Oregon Retail Markets*

Russell O. Sinnhuber
T. C. Yu
Carolyn Hauser
Lois A. Sather



Miscellaneous Paper 125 January 1962
Agricultural Experiment Station • Oregon State University • Corvallis

AUTHORS: Russell O. Sinnhuber, Associate Professor; T. C. Yu, Assistant Professor; Carolyn H. Hauser, Research Technician; Lois A. Sather, Assistant Professor. Department of Food and Dairy Technology, Oregon State University

Supported in part by a grant from the U. S. Department of Agriculture - Agricultural Marketing Act.

# Quality of Frozen Seafoods and Seafood Products in Oregon Retail Markets

The quality of fishery products in the markets is of vital concern to the fishing industry. Efforts by the food industry to put their product on the consumer's table by offering greater convenience and variety, attractively packaged, while still maintaining high quality has forced many food companies, including fish packers to take a closer look at their products. The competition for shelf and freezer cabinet space is so keen that only those items that "move and repeat" can be assured of a place in the super-market.

Secretary of the Interior, Stewart L. Udall, in a recent speech to the National Fisheries Institute said "the big problem facing the fishing industry is how to get the per capita annual fish consumption off dead center. Other foods have risen considerably but fish remains between 10 and 11 pounds per capita." In 1957, a fish marketing and consumption survey of the three Pacific Coast States was made by Christensen and Boshell of Oregon State College. This revealing report pointed to quality as the most important single factor that governs the consumption of fishery products.

The quality picture, as it existed in 1961 in two popular frozen fishery products - fish sticks and shrimp, was described in two articles by Consumer Reports. Only two brands of fish sticks of the 26 tested met the U. S. Department of Interior Standards for Grade A. Ten others would have been judged Grade A except for deficiencies apparently caused by poor storage or handling practices; seven were Grade B, and remaining brands were substandard or rejected. Regarding the quality report on 40 brands of packaged frozen shrimp the Consumer Reports sums up the situation as "dismal". Rancidity is a serious quality defect present in stored fishery products. Lea, in 1952, defined rancidity as any "off-odor or flavor which had developed in an oil or fat as a result of deterioration or storage". The high proportion of unsaturated fats which many fish contain partially explains the ease with which fish products react with air to undergo oxidative rancidity and develop off-flavors. These off-flavors are described by taste panels as "freezer taste", "cod liver oil like" and "rancid taste". In an attempt to assign a numerical value to these off-flavors, Yu and Sinnhuber in 1957 developed a procedure called the TBA method for the measurement of rancidity in fishery products. The TBA is now used to ascertain the quality of many foods such as dairy products, pork, frozen poultry, meat pies, and fats and oils.

With the improvement of the market quality of fishery products as the goal, a statewide survey of retail stores in Oregon was undertaken to uncover the causes and extent of rancidity in frozen seafoods. More than 400 consumer packages from 75 super-markets in eleven major cities of the State were evaluated. The results of the survey are the subject of this report.

## PROCEDURE

Scope of Survey - The State of Oregon, for purposes of this survey, was divided into three areas: The coastal area represented by Newport, Astoria and Seaside; the valley by Portland, Salem, Eugene and Medford; and the eastern area by The Dalles, Hood River, Bend and Klamath Falls.

Only the larger stores or super-markets were sampled. The temperature of the retail freezer case was taken with a minimum thermometer. The three top packages of each specie and brand as well as code of fish were purchased with emphasis on salmon, rockfish and ocean perch. The samples were kept in a freezer carrier under dry ice until they reached the laboratory. There they were stored at 0°F. until tested which was less than a month from the time of purchase and in most cases only a few days. The sampling period was from November 1959 through June 1960.

Gross Package and Product Evaluation - The exterior of the package was examined for visible defects, gross appearance, and whether or not it was sealed. The package was opened and examined again. The frozen product was weighed and then examined for overall appearance, evidence of desiccation, freezer burn and other obvious defects. Samples were taken for chemical analyses.

The products were first thawed, weighed again and the amount of drip loss determined. The products were examined again for the various qualities of workmanship.

Taste Panel Evaluation - The thawed samples were cut into small serving pieces, dipped first in egg and then in cracker meal and deep-fried in shortening at 375°F. for 2 to 3 minutes. The cooked samples were presented in coded cups to a trained panel for organoleptic evaluation. The panel was composed of 12 to 18 staff and graduate students who were trained to recognize the quality factors in fishery products. They were instructed to ignore the breading and score the products on a 7 point intensity ballot for tenderness, rancidity and overall desirability. A score of 7 would be the highest or best score obtainable and 1 the poorest.

Chemical Analysis - Trimethylamine determinations by the procedure of Dyer were made to obtain a measure of the quality of the products from a microbiological standpoint.

The TBA procedure of Yu and Sinnhuber was used to determine the extent of oxidative rancidity that had occurred. Two TBA tests on each sample were run, one which represents an average or composite value of the entire package called the "total TBA number", the other was called the "partial sample". This partial sample represented the poorest portion of the package in the opinion of the analytical chemist, but did not include skin, blood or bone.

## RESULTS AND DISCUSSION

The results obtained in the quality evaluation of over 400 packages of frozen fish and seafood products are presented in detail in the Tables at the conclusion of this report.

A number of other species of fish besides salmon, rockfish and ocean perch were examined to a lesser extent. These include sole, halibut, cod, fish sticks and some miscellaneous seafood products including fresh fish items.

Temperature - The temperature of the freezer cases showed some variation from store to store. In most instances, $0^{o}F.$ was the usual temperature found.

Many, but not all of the packages were coded and therefore it was difficult, in these cases, to be certain that three packages were of the same pack.

Net Weight - The actual frozen fish weight was obtained and compared to the stated package weight. These findings are presented on Summary Chart 1. A considerable number of packages were found to be less than the stated weight. For example, 57 per cent of the rockfish and 54 per cent of the silver salmon were found to be underweight. This is believed to be due not to slackfill but due to the desiccation that takes place during storage. This weight loss can occur, because, with the possible exception of one type of package, all the packages were found to leak air permitting dehydration to take place. A thawed weight close to the frozen weight is additional evidence that the package was not sealed and that the normal drip had been lost through evaporation.

Trimethylamine Values - The trimethylamine determination, while not suitable for salmon, showed that with the possible exception of one or two samples, the fish was of good quality, bacteriologically, when frozen.

TBA Numbers - Average or Total - It has been established by the authors of this paper that the TBA number that one would obtain on very fresh fish such as salmon would be from 2.0 to 3.0. In the case of sole or halibut of similar quality the value might range from 0.5 to 1.0. The reason for this is apparent when one realizes that the TBA determination is a measure of the deterioration that takes place in the fat or lipid. Salmon, being a fatty fish, would be expected to attain a higher TBA number than sole or halibut or even rockfish. Therefore, salmon with a TBA value of from 2 to 4 would be considered very acceptable whereas the same value in a low fat fish such as halibut or sole would be of doubtful quality. TBA numbers of 5 or greater in rockfish, perch and sole would be indicative of unacceptable product, while in salmon it might reach 10 before being judged unacceptable.

TBA Numbers - Partial - In the total TBA number, just discussed, the number is an average value of the entire package. However, when one eats a piece of fish, an average evaluation is not made, but rather the consumer tends to grade on the basis of obvious defects. An example of this grade might be the presence of bones in a package advertised as boneless. In order to approach this type of evaluation, the TBA test was carried out on selected sites or areas such as the belly section, near the skin, of the dark meat. This is termed the partial or selected sample. It might appear that the selection of a

special portion for analyses would not reflect the actual quality of the product. However, in the very fresh state, these same portions would show a low TBA value. It is the opinion of the authors that by evaluation of these sensitive areas one may learn much about previous handling, processing and storage of a particular product. The partial values given in the Summary Chart I and the Tables at the end of this report list TBA number over 50 and in some cases these values go over 100. These samples are obviously unfit for consumption by man or beast.

Panel Results - The results of the trained flavor panel are in agreement with the chemical tests, visual observations and other measurements. They are presented at the end of this report. In Summary Chart 2 the mean flavor scores of all the products are presented. The only frozen products that approached the scores of fresh fish were frozen halibut and sole. Both these fish are low in fat content.

## SUMMARY

The following observations were made in a quality survey of more than 400 frozen seafood packages from approximately 75 supermarkets in eleven Oregon cities:

1. The fishery products, almost without exception, were of good bacteriological quality when frozen.

2. In most instances, retail freezers were maintained at or near $0^{o}$ F.

3. A considerable percentage of frozen seafoods were found to be underweight.

4. Desiccation and dehydration accompanied by a loss of quality was often observed.

5. There is a good correlation between the TBA results and flavor panel scores.

6. The presently used frozen fish package of a waxed paper carton with a wax paper or film overwrap is not suited for the storage of frozen seafoods, chiefly because it is not sealed.

## Bibliography

Consumers' Union. Frozen fried fish sticks. Consumer Report, February 1961, p. 80-83.

Consumers' Union. The record on shrimp. Consumer Report, September 1961,p. 506-510.

Dyer, W. J. Report on trimethylamine in fish. J. Assoc. Official Agricult. Chemists, 42, 292-294, 1959.

Yu, T. C. and R. O. Sinnhuber. 2-Thiobarbituric acid method for the measurement of rancidity in fishery products. Food Technol. 11, 104-108, 1957.

## SUMMARY CHART I

### Rancidity (TBA) Values and Weight Determinations of Seafood Products

| | Salmon Fillets | Salmon Steaks | S. Salmon Fillets | S. Salmon Steaks | Sole | Halibut | Ocean Perch | Rockfish | Cod |
|---|---|---|---|---|---|---|---|---|---|
| | Percent | | | | | | | | |
| Total TBA Greater than 3 | 69.2 | 83.3 | 100 | 88.8 | 15.8 | 7.1 | 23.4 | 62.5 | 0 |
| Total TBA Greater than 5 | 38.5 | 58.3 | 77.8 | 66.7 | 5.3 | 0 | 8.5 | 18.8 | 0 |
| Total TBA Greater than 20 | 7.7 | 25.0 | 7.4 | 22.2 | 0 | 0 | 0 | 0 | 0 |
| Partial TBA Greater than 5 | 100 | 90.9 | 100 | 100 | 21.4 | 38.5 | 65.8 | 85.7 | 33.3 |
| Partial TBA Greater than 10 | 100 | 90.9 | 92.5 | 88.8 | 0 | 15.4 | 19.5 | 64.3 | 16.6 |
| Partial TBA Greater than 50 | 15.4 | 45.5 | 37.0 | 55.5 | 0 | 0 | 0 | 0 | 0 |
| Packages Under weight | 23.8 | 15.6 | 54.3 | 42.1 | 31.2 | 40.6 | 34.0 | 57.5 | 17.6 |

Summary Chart II

Mean Flavor Scores of Seafoods Products

| Products | Tenderness | Rancidity | Over-all Desirability |
|---|---|---|---|
| Salmon fillets | 5.1 | 4.1 | 4.0 |
| Salmon steaks | 4.8 | 3.9 | 3.7 |
| Silver Salmon fillets | 4.6 | 3.8 | 3.7 |
| Silver Salmon steaks | 4.7 | 3.5 | 3.4 |
| Sole fillets | 6.3 | 6.0 | 5.3 |
| Halibut | 4.7 | 5.9 | 5.6 |
| Ocean Perch | 5.1 | 4.9 | 4.6 |
| Rockfish | 4.5 | 4.5 | 4.2 |
| Cod | 4.5 | 5.3 | 4.5 |
| Fresh fish | 6.2 | 6.2 | 5.6 |

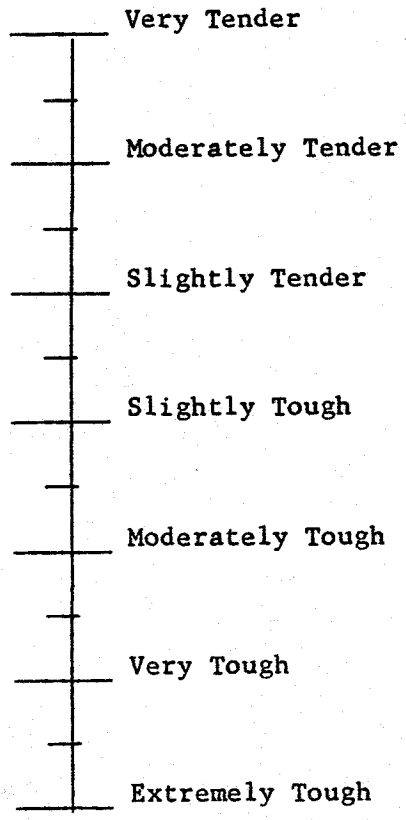
FLAVOR BALLOT

Date: _____

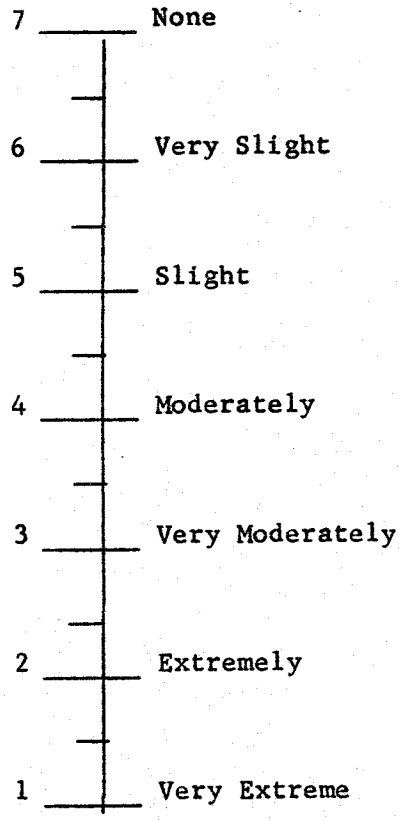
S E A F O O D

Name: _____

TENDERNESS




RANCIDITY




OVER-ALL DESIRABILITY

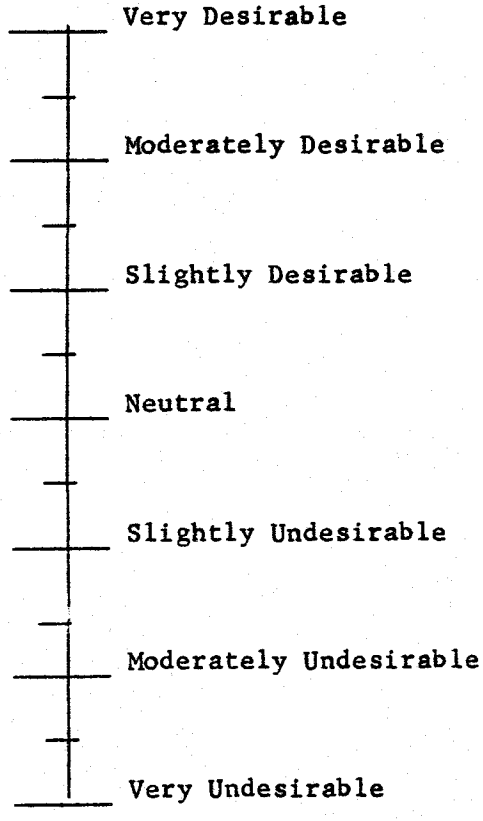


Table 1. Market Quality of Frozen Silver Salmon Fillets

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 A | Salem, 11-27-60 | 0° | 16 | 15.2 | 15.0 | 7.68 | 67.6 | 3.7 | 4.8 | 3.2 | ---- | Very poor, orange in color (almost yellow in one spot), considerable dehydration, some browning. Package very sticky. Inner plastic wrap. |
| 16 B | | | | 15.1 | 14.8 | | | | | | | |
| 16 C | | | | 15.2 | 13.9 | | | | | | | |
| 20 A | Salem, 12-14-59 | 0° | 16 | 15.3 | 15.3 | 5.25 | 103.2 | 3.2 | 4.0 | 3.3 | ---- | Frozen appearance very poor, thawed color orange, considerable dehydration, extreme browning in small areas. Fillets cut from end of belly section leaving much fat on fish. |
| 20 B | | | | 15.5 | 15.2 | | | | | | | |
| 20 C | | | | 15.2 | ---- | | | | | | | |
| 24 A | Salem, 12-14-59 | 0° | 16 | 16.4 | 16.3 | 6.85 | 43.85 | 3.6 | 4.8 | 3.3 | ---- | Poor, pink with considerable dehydration and browning. 5 - 6 pieces in each package, all from tail section of fish. Inner plastic wrap. |
| 24 B | | | | 16.3 | 16.2 | | | | | | | |
| 24 C | | | | 16.3 | 15.7 | | | | | | | |
| 25 A | Salem, 12-14-59 | 0° | 16 | 15.8 | 15.6 | 6.09 | 35.1 | 3.6 | 4.5 | 3.8 | ---- | Poor, color orange, some dehydration, considerable browning, appears to have been previously thawed. Inner plastic wrap. |
| 25 B | | | | 16.3 | 16.3 | | | | | | | |
| 25 C | | | | 15.6 | ---- | | | | | | | |
| 46 A | Eugene, 1-7-60 | -13° | 16 | 16.3 | 16.1 | 3.35 | 13.24 | 3.9 | 5.1 | 4.1 | 0.372 | Fair, pink color somewhat faded. Small amount dehydration and browning. Inner plastic wrap. |
| 46 B | | | | 16.7 | 16.7 | | | | | | | |
| 46 C | | | | 16.3 | 16.2 | | | | | | | |
| 47 | Eugene, 1-7-60 | -13° | 16 | 16.4 | 16.2 | 3.31 | 9.61 | | | | 0.502 | Good, orange color when frozen, pale pink when thawed, little dehydration and browning (about ½" elhring under skin). Inner plastic wrap. |
| 63 A | Eugene, 1-7-60 | ⁄15° | 16 | 15.9 | 12.2 | 8.71 | 16.16 | 3.8 | 4.2 | 3.9 | ---- | Poor, no glaze, considerable dehydration, browning. Inner plastic wrap. |
| 63 B | Eugene, 1-7-60 | ⁄15° | 16 | 16.0 | 13.5 | 5.34 | 9.55 | 5.0 | 5.1 | 5.3 | 0.862 | Poor, no glaze, considerable dehydration, browning. |
| 63 C | | | | 16.1 | ---- | 3.26 | 11.40 | | | | | |

Table 1. Market Quality of Frozen Silver Salmon Fillets (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 69 | Eugene, 1-7-60 | -10° | 16 | 17.1 | 16.6 | 6.53 | 134.8 | --- | --- | --- | 0.437 | Frozen appearance good, orange, small amount dehydration, browning bad in fatty areas. Thawed appearance poor. |
| 75 A | Portland, 2-11-60 | +2° | 16 | 15.9 | 15.5 | 3.2 | 33.66 | 3.7 | 4.7 | 3.7 | 0.201 | Poor, orange pink, glaze, small amount dehydration, browning extreme in fatty areas. |
| 75 B | | | | 16.2 | 15.9 | | | | | | | |
| 75 C | | | | 15.9 | 15.9 | | | | | | | |
| 90 | Portland, 2-11-60 | 0° | 16 | 12.8 | 12.7 | 23.56 | 125.0 | --- | --- | --- | 1.770 | Extremely bad, color brown, extreme browning, browned sections crumbly, all pieces from tail, juices soaked thru carton. Outside paper torn and taped. Slides taken. |
| 91 | Portland, 2-11-60 | 0° | 16 | 13.1 | 13.0 | 15.0 | 61.2 | --- | --- | --- | 2.031 | Same as 90. Slides taken. |
| 94 A | Portland, 2-11-60 | +5° | 16 | 15.8 | 14.9 | 6.36 | 28.35 | 3.0 | 4.9 | 3.2 | ---- | Poor, color faded, considerable dehydration, little browning, all pieces from tail section. Inner plastic wrap. |
| 94 B | | | | 15.4 | 14.7 | | | | | | | |
| 94 C | | | | 16.3 | 16.2 | | | | | | | |
| 96 A | Portland, 2-11-60 | +2° | 16 | 16.3 | 15.2 | 6.78 | 14.17 | 4.2 | 4.7 | 4.2 | ---- | Good, color orange- pink, slight dehydration, slight browning. Inner plastic wrap. |
| 96 B | | | | 16.2 | 15.7 | | | | | | | |
| 96 C | | | | 15.9 | 15.6 | | | | | | | |
| 104 A | Portland, 2-11-60 | +6° | 16 | 15.9 | 15.9 | 5.27 | 47.12 | 3.2 | 4.7 | 3.9 | 0.768 | Poor, bright orange, some dehydration, browning extreme on one side of package, skinned side - strong odor. |
| 104 B | | | | 16.3 | 16.2 | | | | | | | |
| 104 C | | | | 16.0 | 15.7 | | | | | | | |
| 138 A | Dalles, 4-5-60 | -5° | 16 | ---- | ---- | 4.18 | 30.84 | 4.4 | 5.2 | 4.4 | 0.602 | Very poor, faded pink, white dry areas, extreme dehydration, bad browning (½" under skin layers), pieces from tail section, much skin and fat. |
| 138 B | | | | ---- | ---- | | | | | | | |
| 138 C | | | | 15.5 | 15.5 | | | | | | | |

Table 1. Market Quality of Frozen Silver Salmon Fillets (Con't)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 143 A | Bend, 4-5-60 | -10° | 16 | ---- | ---- | 5.56 | 22.25 | --- | --- | --- | 0.850 | Poor, orange pink, extreme dehydration, browning in fatty areas. |
| 143 C | | | | 15.3 | ---- | | | | | | | Excessive fat, color leaked into carton, will not feed panel. Pictures to be taken. |
| 145 A | Bend, 4-5-60 | -7° | 16 | 16.5 | 15.0 | 6.64 | 58.25 | 4.3 | 4.6 | 4.2 | 0.602 | Very poor, orange pink, bad dehydration, large areas of browning. |
| 145 B | | | | 15.7 | 15.4 | | | | | | | Inner plastic wrap. Appears to have been thawed. Leaching of |
| 145 C | | | | 15.4 | 15.4 | | | | | | | color into carton. |
| 187 | Klamath Falls, 5-26-60 | 0° | 16 | 15.8 | 14.3 | 3.28 | 24.29 | --- | --- | --- | ---- | Poor, orange faded, thin glaze, small amount dehydration, browning on skinned layers, inner plastic wrap. Sticky juices inside of carton. |
| 189 A | Klamath Falls, 5-26-60 | -5° | 16 | 15.9 | ---- | 5.64 | 43.18 | 2.3 | 4.0 | 3.0 | ---- | Poor, white with faded pink areas, no glaze, extreme dehydration, |
| 189 B | | | | 15.6 | 15.6 | | | | | | | small amount browning, thawed color orange, untrimmed fat turned |
| 189 C | | | | 15.7 | 15.7 | | | | | | | yellow. |
| 200 | Medford, 5-26-60 | -5° | 16 | 15.4 | 15.2 | 21.6 | 120.5 | --- | --- | --- | ---- | Poor, yellow, extreme dehydration and browning. Inner plastic wrap. Pictures taken 6-13-60. End of outer wrap torn open. |
| 201 A | Ashland, 5-26-60 | 0° | 16 | 16.1 | ---- | 7.18 | 55.64 | 4.1 | 4.8 | 4.3 | ---- | Poor, orange areas, faded pink, considerable dehydration on all |
| 201 B | | | | 15.6 | 15.5 | | | | | | | surfaces. Browning under skin, leaching of color into carton, ice |
| 201 C | | | | 15.1 | 14.9 | | | | | | | and juices frozen on outside of carton. Too much skin and fat. |
| 202 | Ashland, 5-26-60 | 0° | 16 | 15.7 | 15.3 | 12.45 | 117.3 | --- | --- | --- | ---- | Very poor, yellow and faded orange, extreme dehydration and browning. Inner plastic wrap sticky. Skinned so closely, thin layers of skin left. Pictures taken 6-13-60. |

Table 1. Market Quality of Frozen Silver Salmon Fillets (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 204 A | Ashland, 5-26-60 | 0° | 16 | 16.1 | --- | 5.63 | 30.68 | 4.0 | 3.8 | 4.2 | ---- | Very poor, orange yellow, considerable dehydration, extreme |
| 204 B | | | | 16.1 | 15.3 | | | | | | | browning. |

Table 2. Market Quality of Frozen Silver Salmon Steaks

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37 | Salem, 12-14-59 | +11° | 12 | 10.9 | --- | 30.0 | 137.0 | --- | --- | --- | 0.260 | Extremely bad, very small amount pink color left, extreme dehydration and browning. Pictures taken. |
| 42 A | Salem, 12-14-59 | -8° | 12 | 12.7 | --- | 5.26 | 37.2 | 2.8 | 4.4 | 2.9 | ---- | Fair, small amount dehydration and browning. |
| 42 B | | | | 11.7 | --- | | | | | | | |
| 42 C | | | | 12.4 | 11.7 | | | | | | | |
| 81 A | Portland, 2-11-60 | 2° | 12 | 11.6 | 11.6 | 22.73 | 294.4 | 5.3 | 5.3 | 5.3 | 0.756 | New vacuum pack. Fair - C box in poor condition. Took picture |
| 81 B | | | | 12.5 | 12.0 | | | | | | | of C. This fish was packaged within 2 months and still showed |
| 81 C | | | | --- | --- | | | | | | | signs of oxidation, browning, lateral lines, belly and under skin. |
| 141 A | Maupin, 4-5-60 | 0° | 12 | 12.7 | 11.2 | 4.54 | 18.72 | 3.6 | 4.9 | 3.4 | 0.472 | Good, pink orange, small amount dehydration, browning along |
| 141 B | | | | 12.8 | 10.3 | | | | | | | lateral lines. Color passed thru carton. |
| 141 C | | | | 13.2 | --- | | | | | | | |
| 168 A | Corvallis, 5-11-60 | 0° | 12 | 12.3 | --- | 2.07 | 8.99 | 4.2 | 4.9 | 4.7 | 0.378 | New vacuum pack. Good - pink, thin glaze, no dehydration, slight |
| 168 B | | | | 11.7 | --- | | | | | | | browning under skin and lateral lines. |
| 173 A | Corvallis, 5-20-60 | 0° | 12 | 11.9 | 10.2 | 12.8 | 84.0 | 1.8 | 4.0 | 1.9 | 0.212 | Poor, pink on one side, other side badly browned, small amount |
| 173 B | | | | 12.2 | 10.8 | | | | | | | dehydration. |
| 173 C | | | | 12.0 | 11.2 | | | | | | | |

Table 2. Market Quality of Froz en Silver Salmon Steaks (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 191 A | Klamath Falls, 5-27-60 | 5° | 12 | 11.7 | 11.2 | 10.87 | 98.5 | 2.3 | 4.4 | 2.8 | ---- | Poor, some areas of red pink, no glaze, considerable crystalization, dehydration on all surfaces, browning ¼ to ½" under skin, lateral lines and other areas. 1 steak only 1 inch in diameter. |
| 191 B | | | | 11.9 | --- | | | | | | | |
| 192 | Klamath Falls, 5-27-60 | 5° | 12 | 12.3 | 11.0 | 4.61 | 20.84 | --- | --- | --- | ---- | Good, frozen color orange pink, thawed color faded pink. Small amount dehydration, thin layer browning under skin, considerable leaching of color into carton. |
| 193 | Klamath Falls, 5-27-60 | 5° | 12 | 11.7 | 10.5 | 11.74 | 72.6 | --- | --- | --- | ---- | Good, frozen color pink, thawed color orange, some dehydration on surfaces, small amount browning, along lateral lines, leaching of color into carton. |

Table 3. Market Quality of Frozen Salmon Fillets

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 A | Newport, 11-27-59 | 0° | 12 | 12.3 | 12.4 | 6.3 | 47. | 3.2 | 4.9 | 3.3 | ---- | Very poor, extreme dehydration, large area of browning. Inner plastic wrap open at each end exposing fish. |
| 10 B | | | | 12.6 | 12.6 | | | | | | | |
| 10 C | | | | 13.3 | 12.3 | | | | | | | |
| 17 | Newport, 11-27-59 | 0° | 12 | 10.5 | 10.5 | 22. | 171. | --- | --- | --- | ---- | Very poor, color was yellow (small amount of orange), extreme dehydration and browning. Carton had shavings of meat and juices on it. Color slides taken. |
| 38 A | Salem, 12-14-59 | ⁄11° | 12 | --- | --- | 8.52 | 24.2 | --- | --- | --- | 0.761 | Very poor, extreme dehydration and browning. Outside wrapping very dirty and water stained. Fish shavings. Impossible to feed panel. Color slides taken. |
| 38 B | | | | 11.6 | 11.6 | | | | | | | |
| 38 C | | | | --- | --- | | | | | | | |
| 39 | Salem, 12-14-59 | ⁄11° | 12 | 12.6 | 11.8 | 2.34 | 42.6 | --- | --- | --- | --- | Poor, color was from tan to brown when frozen, pink tinge when thawed, extreme dehydration. Sample appeared to be previously thawed. Inner plastic wrap. |

Table 3. Market Quality of Frozen Salmon Fillets (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 A | Eugene, 1-7-60 | ~8° | 16 | 16.6 | 16.3 | 1.34 | 12.5 | 6.1 | 5.3 | 5.8 | 0.366 | Fair, faded color frozen. A and B had considerable dehydration, |
| 55 B | | | | 15.6 | 15.4 | 2.88 | 19.4 | | | | | browning extreme under skin and large amount fat left. C had |
| 55 C | | | | 16.9 | 16.9 | 1.64 | 14.1 | | | | | plastic wrap. *A and B might be different code.* |
| 69 | Eugene, 1-7-60 | 0° | 16 | 17.1 | 16.7 | 6.73 | 134.8 | --- | --- | --- | ----- | Frozen appearance looked good but color was orange. Thawed appearance looked poor, browning bad in 2 fatty areas. Small amount dehydration. Inner plastic wrap. |
| 161 A | Corvallis, 5-4-60 | 0° | 12 | 13 | --- | 3.07 | 30.63 | --- | --- | --- | 0.956 | Poor, skinned side brown-gray, other side orange, no glaze. |
| 161 B | | | | 13.7 | | | | | | | | Inner plastic wrap. Some dehydration, no browning. Appears to have been previously thawed. Pictures. |
| 163 A | Corvallis, 5-9-60 | 0° | 12 | 12.4 | --- | 4.87 | 19.02 | 3.6 | 5.0 | 3.8 | 6.729 | Fair, bright orange, no glaze, no dehydration, large dark areas |
| 163 B | | | | 12.7 | --- | | | | | | | of browning. Inner plastic wrap, extra wax paper wrap. Consid- erable air space. |
| 174 | Corvallis, 5-20-60 | 0° | 12 | 12.9 | 12.9 | 15.51 | 55.8 | --- | --- | --- | ----- | Very poor, yellow-white, no pink, no glaze, extreme dehydration, extreme browning in areas. Thawed color was gray. Pictures taken 6-13-60. |
| 175 | Corvallis, 5-20-60 | 0° | 12 | 11.6 | 11.6 | 4.7 | 23.4 | --- | --- | --- | ----- | Very poor, brown-yellow when frozen, when thawed gray one side, brown the other. Extreme dehydration and browning. Pictures taken 6-13-60. |
| 176 A | Corvallis, 5-20-60 | 0° | 12 | 12.3 | 12.3 | 9.00 | 32.4 | 2.9 | 5.1 | 3.5 | ----- | Very poor, tan, some faded pink, extreme dehydration and browning |
| 176 B | | | | 12.1 | 12.1 | | | | | | | in areas. Very sticky inner plastic wrap. Extra waxed paper |
| 176 C | | | | 11.9 | 11.9 | | | | | | | wrap. Pictures 6-13-60. |

Table 3. Market Quality of Frozen Salmon Fillets (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 177 | Corvallis, 5-20-60 | 0° | 12 | 12.1 | --- | 2.96 | 23.4 | --- | --- | --- | 1.240 | Very poor, very faded pink, extreme dehydration, small amount browning, very sticky inner plastic wrap. |

Table 4. Market Quality of Frozen Salmon Steaks

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 A | Newport, 11-27-59 | 0° | 14 | 14.6 | 13.9 | 20.60 | 108.3 | 1.6 | 3.8 | 2.0 | ---- | Very poor, color faded pink to tan, extreme dehydration, scraps from saw on fish, color bled into package. |
| 12 B | | | | 14.2 | 13.4 | | | | | | | |
| 12 C | | | | 14.1 | 13.2 | | | | | | | |
| 23 A | Salem, 12-14-59 | 0° | 12 | 12.0 | -- | 31.6 | 237.0 | --- | --- | --- | ---- | Extremely poor, no glaze, color brown, entirely dry, whole sample browned, color slides taken. |
| 23 B | | | | --- | --- | | | | | | | |
| 23 C | | | | 12.0 | 11.4 | | | | | | | |
| 31 A | Salem, 12-14-59 | 0° | 14 | 15.0 | 14.9 | 2.10 | 11.8 | 3.8 | 3.0 | 4.1 | ---- | Fair, lower side of package considerably poorer than upper, considerable browning, dehydration. |
| 31 B | | | | 14.6 | 14.1 | | | | | | | |
| 31 C | | | | 14.4 | 14.4 | | | | | | | |
| 51 A | Eugene, 1-7-60 | 0° | 14 | 14.6 | 13.1 | 3.14 | 3.99 | 3.8 | 5.0 | 4.1 | 0.449 | Good, red pink, small amount dehydration and browning, under skin, strong odor. |
| 51 B | | | | 14.6 | 13.7 | | | | | | | |
| 51 C | | | | 14.9 | 14.4 | | | | | | | |
| 82 A | Portland, 2-11-60 | 0° | 14 | 15.0 | 14.3 | 2.21 | --- | 4.3 | 5.0 | 4.2 | 0.236 | Good, bright pink, no dehydration, browning under skin, fat left around belly. |
| 82 B | | | | 14.3 | 12.4 | | | | | | | |
| 82 C | | | | 14.7 | 14.3 | | | | | | | |
| 102 A | Portland, 2-11-60 | -5° | 14 | 14.5 | 13.6 | 5.63 | 28.25 | 4.8 | 5.2 | 4.8 | ---- | Good, thawed color, bright orange, no dehydration, browning under skin, strong odor, color of fish soaked into carton. |
| 102 B | | | | 15.0 | 13.9 | | | | | | | |
| 102 C | | | | 14.4 | 13.2 | | | | | | | |

Table 4. Market Quality of Frozen Salmon Steaks (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 122 | Astoria, 3-20-60 | -15° | 14 | 13.8 | 13.0 | 9.84 | 96.88 | --- | --- | --- | 0.473 | Poor, orange, 1 piece had very bad blood spot and was faded pink, small amount glaze, dehydration bad, browning bad under skin and along lateral lines, much fat not trimmed off. |
| 123 | Astoria, 3-20-60 | -15° | 14 | 13.6 | 13.6 | 18.55 | 55.81 | --- | --- | --- | 2.361 | Poor, faded pink-orange, some dehydration, some glaze, browning under skin and lateral lines, color of fish passed thru carton. |
| 124 A | Astoria, 3-20-60 | -15° | 14 | 14.1 | --- | 4.17 | 4.70 | 3.7 | 4.6 | 3.6 | 0.957 | Good, pink-orange, good glaze, small amount dehydration, browning under skin and along lateral lines, considerable color of fish passed thru to carton. |
| 124 B | | | | 13.5 | --- | | | | | | | |
| 124 C | | | | 14.8 | 13.5 | | | | | | | |
| 125 A | Astoria, 3-20-60 | -15° | 14 | 14.3 | 11.2 | 4.01 | 14.64 | --- | --- | --- | 0.909 | Good, pink, some dehydration, some browning under skin and along lateral lines, considerable transfer of color to package. |
| 125 B | | | | 14.5 | 12.5 | | | | | | | |
| 125 C | | | | 14.3 | 13.9 | | | | | | | |
| 148 | Bend, 4-5-60 | -7° | 14 | 16.7 | 16.5 | 7.44 | 43.96 | --- | --- | --- | 0.944 | Poor, pink-orange, glaze on one side, dehydration bad on side without glaze, browning bad under skin and lateral lines, wrapping torn open. |
| 151 A | Bend, 4-5-60 | -7° | 14 | 12.2 | --- | 37.80 | 391.0 | --- | --- | --- | 0.744 | Poor, center of steaks pink-red, no glaze, dehydration, extreme browning (¼ - ½" under skin), box entirely open, small amount of leach of color, pictures. |
| 151 B | | | | 13.7 | --- | | | | | | | |
| 151 C | | | | --- | --- | | | | | | | |
| 152 A | Dalles, 4-5-60 | -5° | 14 | 15.0 | --- | ---- | ---- | 5.3 | 5.3 | 5.2 | ---- | Fair, pink, some glaze, small amount dehydration, browning under skin and lateral lines, leaching of color into package. |
| 152 B | | | | 15.2 | --- | | | | | | | |

Table 5. Market Quality of Frozen Halibut

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 A | Newport, 11-27-59 | 0° | 16 | 16.2 | 15.7 | 0.98 | 5.95 | 6.0 | 5.8 | 6.0 | ---- | Fair, color off white, some dehydration at ends, some browning, |
| 9 B | | | | 16.3 | 16.1 | | | | | | | thawed appearance looked good. |
| 9 C | | | | 16.0 | 14.8 | | | | | | | |
| 12 | Astoria, 3-20-60 | 0° | 16 | 17.3 | 16.1 | 1.21 | 4.91 | --- | --- | --- | 3.837 | Excellent, white, glaze, small amount dehydration, small amount browning along lateral lines. |
| 18 A | Newport, 11-27-59 | 0° | 16 | 15.4 | 15.4 | 1.04 | 1.65 | 6.0 | 5.2 | 6.6 | ---- | Excellent, white, good glaze, no dehydration or browning, in- |
| 18 B | | | | 15.3 | 15.3 | | | | | | | ner polyethelene wrap. |
| 18 C | | | | 15.0 | --- | | | | | | | |
| 30 A | Salem, 12-14-59 | 0° | 16 | 16.4 | --- | 1.18 | 6.55 | 5.2 | 4.5 | 5.8 | ---- | Good, considerable browning under skin and along lateral lines. |
| 30 B | | | | 16.2 | --- | | | | | | | |
| 30 C | | | | 16.7 | 15.3 | | | | | | | |
| 56 | Eugene, 1-7-60 | 8° | 16 | 11.7 | 11.5 | 2.11 | 3.89 | --- | --- | --- | 2.415 | Very poor, white, no glaze, extreme dehydration, no browning. Thawed appearance fair. |
| 88 | Portland, 2-11-60 | 0° | 16 | 13.4 | --- | 3.03 | --- | --- | --- | --- | 2.868 | Very poor, carton looked as if it had previously been soaked, color yellow-white, some browning, color slides taken. |
| 95 | Portland, 2-11-60 | 5° | 16 | --- | --- | --- | --- | --- | --- | --- | 2.361 | |
| 98 A | Portland, 2-11-60 | 2° | 12 | 12.8 | 10.8 | 1.50 | 11.18 | 5.8 | 4.7 | 6.2 | 0.283 | Good, white, small amount dehydration, considerable browning |
| 98 B | | | | 13.3 | 9.5 | | | | | | | along lateral lines. |
| 98 C | | | | 13.3 | --- | | | | | | | |

Table 5. Market Quality of Frozen Halibut (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 129 A | Seaside, 3-19-60 | -5° | 16 | 16.3 | 13.4 | 1.64 | 4.53 | 5.4 | 4.6 | 4.9 | 0.330 | Excellent, white, good glaze, very little dehydration, no |
| 129 B | | | | 16.9 | 15.3 | | | | | | | browning. |
| 129 C | | | | 16.6 | 15.6 | | | | | | | |
| 133 A | Dalles, 4-5-60 | 0° | 16 | 15.4 | 14.2 | 1.44 | 3.05 | 5.5 | 4.4 | 5.8 | 1.687 | Good, white and dark meat areas, small amount dehydration, no |
| 133 B | | | | 15.3 | 14.7 | | | | | | | browning, inner polyehtelene wrap badly stuck to fish, wrap |
| 133 C | | | | 15.2 | 14.5 | | | | | | | not entirely covering. |
| 142 A | Bend, 4-5-60 | -10° | 16 | 15.6 | 12.6 | --- | --- | 5.3 | 4.0 | 5.9 | ---- | Fair, off white, thin glaze, dehydration along edges, juices |
| 142 B | | | | 15.9 | 13.7 | | | | | | | frozen outside carton, fish stuck to carton. |
| 142 C | | | | 15.4 | --- | | | | | | | |
| 155 | Dalles, 4-5-60 | -5° | 16 | 16.1 | 16.0 | 1.46 | 9.98 | --- | --- | --- | ---- | Poor, thawed color tan, frozen--white, some dehydration, |
| | | | | | | | | | | | | browning under skin. |
| 156 | Dalles, 4-5-60 | -5° | 16 | 15.4 | 13.6 | 1.08 | 4.69 | --- | --- | --- | ---- | Good, white, ice crystals over surface, some dehydration and |
| | | | | | | | | | | | | browning under skin and lateral lines. |
| 162 A | Corvallis, 5-4-60 | 0° | 12 | 13.5 | --- | 1.33 | 1.63 | 5.5 | 4.7 | 6.2 | 1.369 | Fair, yellow white, no glaze, no dehydration, small amount |
| 162 B | | | | 13.8 | --- | | | | | | | browning, considerable free air space, 12 oz. fish packed in |
| 162 C | | | | 13.5 | --- | | | | | | | 1 lb. box. |
| 180 | Corvallis, 5-24-60 | 0° | 12 | 11.9 | --- | 2.39 | 10.19 | --- | --- | --- | 1.240 | Good, white, no glaze, small amount dehydration on surfaces, |
| | | | | | | | | | | | | browning along lateral lines. |
| 181 | Corvallis, 5-24-60 | 0° | 12 | 12.0 | --- | 1.73 | 4.10 | --- | --- | --- | 0.921 | Good, white, no glaze, small amount dehydration on surfaces, |
| | | | | | | | | | | | | browning along lateral lines and under skin. |

Table 6. Market Qua lity of Frozen Perch

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 A | Newport, 11-27-59 | 0° | 16 | 15.5 | 15.5 | 3.82 | 18.39 | 3.9 | 5.4 | 5.6 | ---- | Fair, color tan, small amount browning, considerable dehydration at ends and free air spaces. |
| 14 B | | | | 16.9 | 16.9 | | | | | | | |
| 14 C | | | | 16.0 | 16.0 | | | | | | | |
| 21 | Salem, 12-14-59 | 0° | 16 | 16.1 | 14.9 | 1.30 | 13.5 | --- | --- | --- | ---- | Poor, tan color, little glaze, considerable dehydration, some browning, inner polyethelene wrap. |
| 27 | Salem, 12-14-59 | 0° | 16 | 17.2 | --- | 2.34 | 7.53 | --- | --- | --- | ---- | Good frozen, some dehydration on ends, small amount browning, poor thawed appearance. |
| 29 A | Salem, 12-14-59 | 0° | 16 | 16.1 | 16.1 | 1.96 | 15.40 | 5.0 | 5.0 | 5.2 | ---- | Good, little dehydration and browning, all pieces from tail of fish, inner polyethelene wrap. |
| 29 B | | | | 16.5 | 15.9 | | | | | | | |
| 29 C | | | | 16.5 | 15.0 | | | | | | | |
| 36 A | Salem, 12-14-59 | 11° | 16 | 16.3 | 15.8 | 1.42 | 2.50 | 4.4 | 4.4 | 5.1 | ---- | Poor thawed color, tan, no glaze, considerable dehydration at ends and free air space areas, considerable free air space. |
| 36 B | | | | 16.5 | 16.2 | | | | | | | |
| 36 C | | | | 16.9 | 16.4 | | | | | | | |
| 40 A | Salem, 12-14-59 | -8° | 15 | 14.7 | 14.4 | 3.79 | 11.52 | 2.0 | 5.40 | 2.4 | 0.673 | Good, color off white, some pieces had dark areas, skin left on and pieces put together so skin runs down center of piece. No dehydration, slight browning. |
| 40 B | | | | 15.4 | 15.2 | | | | | | | |
| 40 C | | | | 15.2 | 15.2 | | | | | | | |
| 43 A | Eugene, 1-7-60 | -13° | 16 | 15.9 | 15.8 | 1.38 | 8.93 | 5.5 | 5.5 | 5.4 | 0.514 | Excellent, pinkish white, glaze, no dehydration or browning, inner polyethelene wrap. |
| 43 B | | | | 14.9 | 14.9 | | | | | | | |
| 43 C | | | | 16.6 | 16.6 | | | | | | | |
| 44 | Eugene, 1-7-60 | -13° | 16 | 15.7 | 15.4 | 2.22 | 5.85 | --- | --- | --- | 0.573 | Poor, dark tone, little glaze, considerable dehydration, no browning, feather fat grey. |

Table 6. Market Quality of Frozen Perch (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 A | Eugene, 1-7-60 | 6° | 16 | 16.6 | 15.5 | 4.26 | 10.28 | 4.2 | 5.2 | 4.5 | 2.951 | Fair, lt. tan, little dehydration, no browning, odor slightly |
| 52 B | | | | 16.7 | 15.6 | | | | | | | rancid, all pieces from tail. Inner polyethelene wrap. |
| 52 C | | | | 17.2 | 16.7 | | | | | | | |
| 57 | Eugene, 1-7-60 | 8° | 16 | 16.0 | 13.2 | 3.25 | 6.20 | --- | --- | --- | 2.715 | Good, glaze, some dehydration at ends, no browning. |
| 61 A | Eugene, 1-7-60 | 15° | 16 | 16.2 | 15.4 | 1.93 | 5.01 | 6.0 | 5.5 | 6.0 | 0.183 | Fair to good, pink white, small amount of dehydration , no |
| 61 B | | | | 16.1 | 15.8 | | | | | | | browning, fish stuck to cardboard carton, shavings from saw. |
| 61 C | | | | 16.0 | 15.4 | | | | | | | |
| 65 A | Eugene, 1-7-60 | 15° | 16 | 16.1 | 15.4 | 2.11 | 2.54 | 5.4 | 4.6 | 5.6 | 0.531 | Good, tan, glaze, dehydration on ends, no browning. |
| 65 B | | | | 16.2 | 15.7 | | | | | | | |
| 65 C | | | | 16.0 | 15.2 | | | | | | | |
| 70 | Eugene, 1-7-60 | -10° | 16 | 16.3 | 16.2 | 2.84 | 3.64 | --- | --- | --- | 5.525 | Frozen appearance good, small amount dehydration, no browning, thawed appearance poor, dry. |
| 78 A | Portland, 2-11-60 | 2° | 16 | 16.8 | --- | 1.63 | 1.77 | 5.0 | 4.6 | 4.8 | 2.762 | Fair, lt. tan, very good glaze, no dehydration or browning, lg. |
| 78 B | | | | 15.9 | --- | | | | | | | amounts fatty area that could have been cut off, inner polyethelene |
| 78 C | | | | 15.9 | --- | | | | | | | wrap. |
| 85 A | Portland, 2-11-60 | 4° | 12 | 11.6 | --- | 6.24 | 22.31 | --- | --- | --- | 1.983 | Very poor, impossible to feed, pink off white color, extreme de- |
| 85 B | | | | 11.7 | --- | | | | | | | hydration, some browning, carton soft and dirty as if fish might |
| 85 C | | | | 11.6 | --- | | | | | | | have been thawed, took pictures. |
| 89 | Portland, 2-11-60 | 0° | 16 | 16.2 | --- | 2.05 | 16.84 | --- | --- | --- | 8.086 | Fair, off white, small amount dehydration and browning. |

Table 6. Market Quality of Frozen Perch (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 97 A | Portland, 2-11-60 | 2° | 16 | 16.2 | 14.2 | 1.08 | 1.76 | 5.4 | 5.1 | 5.5 | 0.000 | Good, pink white, no dehydration, no browning, inner polyethelene wrap. |
| 97 B | | | | 15.6 | 14.1 | | | | | | | |
| 97 C | | | | 16.2 | 15.9 | | | | | | | |
| 100 A | Portland, 2-11-60 | -5° | 16 | 16.6 | 16.0 | 1.70 | 2.66 | 4.6 | 4.9 | 5.5 | 1.629 | Fair, good glaze, some dehydration and browning, inner polyethelene wrap. |
| 100 B | | | | 15.9 | 14.9 | | | | | | | |
| 100 C | | | | 16.3 | 14.8 | | | | | | | |
| 105 A | Portland, 2-11-60 | 6° | 16 | 16.3 | 16.0 | 1.62 | 4.98 | 5.3 | 5.6 | 5.4 | 12.630 | Fair, tan, dehydration in free air space, no browning, inner polyethelene wrap. |
| 105 B | | | | 16.2 | 15.1 | | | | | | | |
| 105 C | | | | 16.4 | 16.2 | | | | | | | |
| 108 | Astoria, 3-19-60 | 2° | 16 | 15.2 | 15.1 | 1.81 | 7.78 | --- | --- | --- | 0.779 | Fair, color tan-pink, glaze on one side, considerable free air space areas with considerable dehydration, no browning. |
| 109 | Astoria, 3-19-60 | 2° | 16 | 15.8 | 15.8 | 2.86 | 5.83 | --- | --- | --- | 2.715 | Fair, tan, glaze on one side, considerable free air space areas with considerable dehydration, no browning. |
| 110 A | Astoria, 3-19-60 | 0° | 16 | 15.7 | 15.0 | 2.99 | 10.76 | 4.9 | 5.3 | 5.2 | 0.744 | Poor, tan, no glaze, considerable dehydration on all surfaces, browning present on fatty areas, skinless. |
| 110 B | | | | 15.7 | 14.9 | | | | | | | |
| 110 C | | | | 17.6 | 17.4 | | | | | | | |
| 114 | Astoria, 3-20-60 | 0° | 12 | 12.0 | 11.4 | 1.08 | 2.97 | --- | --- | --- | 1.594 | Good, off white, considerable dehydration, 8 pieces all from tail section. |
| 115 | Astoria, 3-21-60 | 0° | 16 | 16.0 | 16.4 | 2.56 | 7.35 | --- | --- | --- | 0.543 | Poor, blue coloring had soaked thru box to fish, tan, extreme dehydration, considerable free air space, small amount browning. |

Table 6. Market Quality of Frozen Perch (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 116 | Astoria, 3-21-60 | 0° | 16 | 15.2 | --- | 7.98 | 6.68 | --- | --- | --- | 0.933 | Fair, tan, some glaze, dehydration in free air space areas of which there was considerable, small amount browning. |
| 118 | Seaside, 3-19-60 | 0° | 16 | 16.2 | 16.2 | 1.37 | 5.16 | --- | --- | --- | 0.284 | Fair, pink-white, no glaze, dehydration on all surfaces particularly bad in free air spaces, small amount browning, (spineless) |
| 119 | Seaside, 3-19-60 | 0° | 16 | 15.7 | 15.1 | 2.46 | 9.02 | --- | --- | --- | 5.738 | Fair, tan, no glaze, dehydration bad on free air space areas, present on all surfaces, no browning. |
| 134 A | Dalles, 4-5-60 | 0° | 16 | 15.8 | 15.4 | 2.24 | 4.62 | 4.5 | 4.6 | 4.6 | 5.383 | Poor, tan, small amount glaze, dehydration bad in free air space areas, skin surface seemed to have deteriorated and dried badly. |
| 134 B | | | | 16.0 | 15.7 | | | | | | | |
| 134 C | | | | 16.3 | 16.2 | | | | | | | |
| 136 | The Dalles, 4-5-60 | 0° | 12 | 10.7 | 10.7 | 4.57 | 4.3 | --- | --- | --- | ---- | Very poor, dry white, extreme dehydration, small amount browning, Pictures taken 6-13-60. |
| 139 A | Dalles, 4-5-60 | 0° | 16 | 15.5 | 14.3 | 2.25 | 6.52 | 4.1 | 4.4 | 4.6 | 7.472 | Poor, pink white, no glaze, dehydrated on edges and one side. |
| 139 B | | | | 15.1 | 14.0 | | | | | | | Small amount browning. |
| 139 C | | | | 15.8 | 15.7 | | | | | | | |
| 146 A | Bend, 4-5-60 | -7° | 12 | 12.2 | 12.1 | 1.67 | 5.02 | 4.3 | 5.8 | 4.8 | 6.730 | Fair, grey, no glaze, small amount dehydration, no browning, |
| 146 B | | | | 11.6 | 10.7 | | | | | | | package torn open, carton gets very soggy or thawing, 9-10 |
| 146 C | | | | 12.3 | 9.6 | | | | | | | pieces of very small and thin fillets. |
| 147 A | Bend, 4-5-60 | -7° | 16 | 16.2 | 15.8 | 1.37 | 3.06 | 4.7 | 4.5 | 5.2 | 0.921 | Excellent, grey-tan, good glaze, small amount dehydration where |
| 147 B | | | | 16.2 | 15.9 | | | | | | | inner polyethelene wrap did not cover, no browning. |
| 147 C | | | | --- | --- | | | | | | | |

Table 6. Market Quality of Frozen Perch (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 153 A | Dalles, 4-5-60 | -5° | 16 | 17.6 | 15.4 | 1.54 | 7.31 | 4.8 | 5.4 | 4.6 | 0.389 | Very poor, dark tan, good glaze, some dehydration, slight |
| 153 B | | | | 15.4 | 14.2 | | | | | | | browning, small pieces, inner polyethelene wrap. |
| 153 C | | | | 15.8 | 15.7 | | | | | | | |
| 157 A | Astoria, 3-20-60 | -15° | 16 | 16.2 | 15.5 | 6.99 | 5.22 | 4.1 | 5.0 | 4.2 | 1.051 | Good, white-pink, good glaze, dehydration only where polyethelene |
| 157 B | | | | 16.6 | 16.0 | | | | | | | wrap did not cover, no browning. |
| 157 C | | | | 16.7 | 16.6 | | | | | | | |
| 157 $A_1$ | Seaside, 3-20-60 | 0° | 16 | 16.0 | 15.4 | 1.41 | 9.79 | 4.9 | 4.9 | 5.4 | 2.310 | Good, tan-pink, good glaze, no dehydration except in small area |
| 157 $B_2$ | | | | 16.2 | 15.6 | | | | | | | where polyethelene wrap did not cover. |
| 157 $C_3$ | | | | 16.3 | 16.1 | | | | | | | |
| 169 A | Corvallis, 5-11-60 | 0° | 12 | --- | --- | 2.33 | --- | 5.4 | 5.3 | 5.7 | ---- | Excellent, pink-white, good glaze, no browning or dehydration, |
| 169 B | | | | --- | --- | | | | | | | vacuum pack. |
| 169 C | | | | --- | 12.3 | | | | | | | |
| 182 A | Corvallis, 5-24-60 | 0° | 16 | 15.9 | --- | 1.95 | 1.71 | 3.8 | 4.5 | 4.5 | -.130 | Fair, off white, some glaze, dehydration on free air space areas, |
| 182 B | | | | 15.0 | 14.0 | | | | | | | no browning. |
| 190 A | Klamath Falls, 5-24-60 | 0° | 12 | 11.7 | 11.7 | 3.28 | 7.01 | 4.7 | 5.5 | 4.9 | ---- | Good, off white, thin glaze, small amount dehydration, no |
| 190 B | | | | 11.1 | --- | | | | | | | browning, carton very weak and easily soaked, carton dirty. |
| 190 C | | | | 12.0 | 12.0 | | | | | | | |
| 194 A | Medford, 5-27-60 | -5° | 16 | 16.1 | --- | 4.23 | 3.36 | 4.5 | 5.3 | 5.0 | ---- | Excellent, off white, no dehydration or browning, odor very |
| 194 B | | | | 16.0 | 15.5 | | | | | | | strong, inner polyethelene wrap. |
| 194 C | | | | 15.9 | 15.7 | | | | | | | |
| 63 B | Eugene, 1-7-60 | -15° | 16 | 16.0 | 13.5 | 5.34 | 9.55 | 5.0 | 5.1 | 5.3 | 0.862 | Poor, no glaze, considerable dehydration, browning. |
| 63 C | | | | 16.1 | ---- | 3.26 | 11.40 | | | | | |

Table 6. Market Quality of Frozen Perch (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 199 A | Medford, 5-26-60 | 0° | 16 | 16.1 | 15.7 | 7.61 | 22.5 | 4.0 | 4.5 | 4.4 | ---- | Fair, off white, some dehydration, inner polyethelene wrap |
| 199 B | | | | 15.9 | --- | | | | | | | |
| 199 C | | | | 15.2 | 15.1 | | | | | | | |
| 205 A | Medford, 5-26-60 | 0° | 16 | 16.6 | --- | 2.67 | 5.75 | 5.5 | 5.4 | 6.0 | ---- | Excellent, off white, no dehydration or browning, inner poly- |
| 205 B | | | | 16.2 | 16.1 | | | | | | | ethelene wrap. |
| 205 C | | | | 16.4 | 16.0 | | | | | | | |

Table 7. Market Qua lity of Frozen Cod

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41 A | Salem, 12-14-59 | -8° | 16 | --- | --- | 0.87 | 1.75 | 4.9 | 5.2 | 5.8 | ---- | Thawed appearance good, considerable dehydration, no browning. |
| 41 B | | | | 16.3 | 16.3 | | | | | | | |
| 41 C | | | | 15.6 | 15.4 | | | | | | | |
| 84 A | Portland, 2-11-60 | 2° | 12 | --- | --- | 12.2 | --- | 3.9 | 2.9 | 5.3 | ---- | Wrapped in aluminum foil, attractively decorated with seasoning, |
| 84 B | | | | --- | --- | | | | | | | color light tan, some dehydration on edges. |
| 101 A | Portland, 2-11-60 | -5° | 16 | 16.2 | 15.6 | 0.82 | 1.02 | 5.6 | 5.4 | 6.0 | 0.413 | Very good, white (small pink area), no dehydration or browning, |
| 101 B | | | | 17.0 | 16.3 | | | | | | | odor very strong when cooking, inner polyethelene wrap. |
| 101 C | | | | 16.8 | 16.3 | | | | | | | |
| 150 A | Bend, 4-5-60 | -7° | 16 | 16.1 | 15.7 | 1.46 | 7.00 | 5.1 | 4.9 | 5.4 | 0.732 | Good, white with dark meat areas, excellent glaze, small amount |
| 150 B | | | | 16.6 | 16.3 | | | | | | | dehydration, no browning, inner polyethelene wrap. |
| 150 C | | | | 16.6 | 15.4 | | | | | | | |
| 179 A | Corvallis, 5-24-60 | 0° | 16 | 16.5 | 15.2 | 1.45 | 4.34 | 3.7 | 5.1 | 5.1 | ---- | Good, white, small amount dehydration, no browning, no glaze. |
| 179 B | | | | --- | --- | | | | | | | |
| 179 C | | | | 16.5 | 16.3 | | | | | | | |

Table 7. Market Quality of Frozen Cod (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 84 A | Medford, 5-26-60 | 0° | 16 | 15.7 | 15.7 | 2.45 | 21.0 | 3.5 | 4.1 | 4.1 | 1.700 | Fair, off white, no glaze, dehydration on all surfaces, n |
| 84 B | | | | 16.0 | 16.0 | | | | | | | browning. |
| 84 C | | | | 15.9 | --- | | | | | | | |

Table 8. Market Quality of Frozen Rockfish

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | Salem, 12-14-59 | 0° | 16 | 11.7 | 10.1 | 10.44 | ---- | --- | --- | --- | 2.609 | Extremely bad, tan frozen color, no glaze, thawed color brown, completely dehydrated, considerable browning, outside wrapping torn, faded, unsealed, color slides taken. |
| 22 A | Salem, 12-14-59 | 0° | 16 | 16.0 | 16.0 | 2.39 | 3.70 | 2.9 | 4.1 | 3.4 | ---- | Fair, tan, glaze, some dehydration at ends, small amount |
| 22 B | | | | 15.5 | 15.1 | | | | | | | bronwing, inner polyethelene wrap. |
| 22 C | | | | 15.6 | 14.4 | | | | | | | |
| 28 A | Salem, 12-14-59 | 0° | 16 | 15.2 | 14.2 | 9.20 | 48.5 | 4.1 | 4.3 | 4.2 | 1.623 | Poor, thawed color dark tan, no glaze, considerable dehydration |
| 28 B | | | | 15.6 | 14.8 | | | | | | | at ends, browning. |
| 28 C | | | | 15.3 | 13.6 | | | | | | | |
| 35 A | Salem, 12-14-59 | 0° | 16 | 15.4 | 14.7 | 1.90 | 10.60 | 4.3 | 4.1 | 4.8 | ---- | Poor, color dark tan, good glaze, browning, dehydration on ends, |
| 35 B | | | | 16.5 | 15.8 | | | | | | | inner polyethelene wrap. |
| 35 C | | | | 16.0 | 15.7 | | | | | | | |
| 48 | Eugene, 1-7-60 | -13 | 16 | 15.2 | --- | 6.88 | 17.7 | --- | --- | --- | 0.862 | Poor, tan, no glaze, considerable dehydration on all edges, browning on fatty areas folded in. |
| 49 A | Eugene, 1-7-60 | -13 | 16 | 16.2 | 16.0 | --- | --- | 5.3 | 5.6 | 5.3 | 1.594 | Fair, good glaze, some dehydration on ends, slight browning, |
| 49 B | | | | 16.9 | 16.7 | | | | | | | inner polyethelene wrap. |
| 49 C | | | | 15.9 | 15.6 | | | | | | | |

Table 8. Market Quality of Frozen Rockfish (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58 | Eugene, 1-7-60 | 8° | 16 | 16.5 | --- | 4.27 | 38.78 | --- | --- | --- | 0.544 | Fair, light tan, very little glaze, dehydration considerable on edges and ends, browning on one side of package, and fatty edges. |
| 62 A | Eugene, 1-7-60 | 15° | 16 | 15.4 | 14.1 | 4.69 | 17.9 | 4.3 | 3.9 | 5.3 | 1.511 | Poor, tan, no glaze, considerable dehydration, browning. |
| 62 B | | | | 16.2 | --- | | | | | | | |
| 62 C | | | | 15.2 | 14.6 | | | | | | | |
| 77 A | Portland, 2-11-60 | 2° | 16 | 16.2 | 15.1 | 2.59 | 10.21 | 5.2 | 4.9 | 5.3 | 0.165 | Good, light tan, some dark areas, glaze, little dehydration at ends, no browning, inner polyethelene wrap. |
| 77 B | | | | 16.9 | 15.4 | | | | | | | |
| 77 C | | | | 16.2 | 15.9 | | | | | | | |
| 140 A | Dalles, 4-5-60 | -5° | 16 | 16.3 | 14.7 | --- | ---- | 3.7 | 4.8 | 4.1 | 0.661 | Fair, light tan, small amount glaze, dehydration, extreme on edges and free air space, no browning, considerable fat. |
| 140 B | | | | 15.6 | 14.1 | | | | | | | |
| 140 C | | | | 15.3 | 14.9 | | | | | | | |
| 158 A | (direct from plant) 4-5-60 | 0° | 16 | 15.8 | 15.2 | 0.87 | 8.13 | 4.3 | 4.9 | 4.8 | 0.637 | Fair, dark tan thawed, glaze on one side, the other ice crystals, dehydration seems to be starting on unglazed side, appeared older than 1 week. |
| 158 B | | | | 16.1 | 15.3 | | | | | | | |
| 164 A | Corvallis, 5-9-60 | 0° | 16 | 14.7 | --- | 3.54 | 10.17 | 4.5 | 4.8 | 4.7 | 0.401 | Fair, grey-white, no glaze, dehydration on skinned areas, considerable free air space. |
| 164 B | | | | 14.9 | --- | | | | | | | |
| 183 A | Medford, 5-26-60 | 0° | 16 | 15.6 | 15.0 | 1.55 | 4.15 | 4.2 | 3.9 | 4.6 | 1.369 | Fair, off white, no glaze, dehydration on all surfaces, small amount of browning, not well skinned. |
| 183 B | | | | 15.8 | 15.0 | | | | | | | |
| 183 C | | | | 15.4 | --- | | | | | | | |
| 186 A | Klamath Falls, 5-26-60 | -5° | 16 | 16.8 | 16.3 | 3.06 | 6.22 | 3.8 | 4.6 | 4.3 | 1.369 | Good, off white with dark meat areas, thin glaze, small amount dehydration, no browning, fish stuck to carton. |
| 186 B | | | | 15.7 | 14.1 | | | | | | | |
| 186 C | | | | 16.2 | ---- | | | | | | | |

Table 8. Market Quality of Frozen Rockfish (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 188 | Klamath Falls, 5-26-60 | -5° | 16 | 16.3 | 15.6 | 3.01 | 9.35 | --- | --- | --- | ---- | Excellent- off white, gray tone in some areas, no dehydration, no browning, outer cellaphane wrap, inner polyethelene wrap. |
| 198 A | Medford, 5-26-60 | -5° | 16 | 16.0 | --- | 4.25 | 13.55 | 3.5 | 4.4 | 3.8 | ---- | Very bad, yellow, thin glaze, small amount dehydration, browning, inner polyethylene wrap, meat not normal color. |
| 198 B | | | | 15.5 | 15.0 | | | | | | | |
| 198 C | | | | 15.4 | 15.2 | | | | | | | |
| 203 | Ashland, 5-26-60 | 0° | 16 | 15.3 | 14.8 | 3.21 | ---- | --- | --- | --- | ---- | Poor, off white in areas, extreme dehydration in free air space areas, small amount browning, poor skinning job. |
| 207 | ------ | 0° | 16 | 16.4 | 16.2 | 2.60 | 10.95 | --- | --- | --- | --- | Good, off white, thin glaze, small amount dehydration and browning. |

Table 9. Market Quality of Frozen Sole

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 A | Newport, 11-27-59 | 0° | 16 | 15.9 | 15.7 | 7.76 | ---- | 4.6 | 6.5 | 5.8 | ---- | Fair, some dehydration at free air space areas, no browning, color light tan with pinkish areas, juices leaked outside carton. |
| 8 B | | | | 15.5 | 15.3 | | | | | | | |
| 8 C | | | | 15.2 | 15.1 | | | | | | | |
| 15 A | Newport, 11-27-59 | 0° | 16 | 15.9 | 15.0 | 1.68 | 2.82 | 5.6 | 6.6 | 6.3 | ---- | Good, good glaze, no dehydration or browning, inner plastic wrap. |
| 15 B | | | | 16.0 | 16.0 | | | | | | | |
| 15 C | | | | 15.0 | 14.5 | | | | | | | |
| 26 A | Salem, 12-14-59 | 0° | 16 | 16.3 | 15.5 | 3.89 | 5.01 | 5.8 | 6.2 | 5.8 | 2.101 | Good, light tan, good glaze, little dehydration no browning, torn outer package, ice outside carton, inner plastic wrap. |
| 26 B | | | | 16.6 | 14.9 | | | | | | | |
| 26 C | | | | 15.7 | 14.7 | | | | | | | |

Table 9. Market Quality of Frozen Sole (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 131 A | Seaside, 3-19-60 | -5° | 16 | 16.8 | 15.7 | 1.47 | 1.88 | 4.8 | 6.6 | 6.2 | 0.235 | Excellent, pink white, good glaze, no browning or dehydration, |
| 131 B | | | | 15.9 | 14.8 | | | | | | | inner plastic wrap. |
| 131 C | | | | 16.4 | 15.1 | | | | | | | |
| 135 A | Dalles, 4-5-60 | 0° | 16 | 16.4 | 15.7 | 1.00 | 4.06 | 4.4 | 6.1 | 5.5 | 0.295 | Good, off white, no glaze, small amount dehydration, no brown- |
| 135 B | | | | 16.2 | 14.9 | | | | | | | ing, 5-6 thin fillets, many tasters complained of extreme iodine |
| 135 C | | | | 16.3 | 16.1 | | | | | | | and medicinal flavor. |
| 144 A | Bend, 4-5-60 | -5° | 16 | 15.9 | 14.7 | 2.03 | 7.01 | --- | --- | --- | 4.061 | Excellent, white glaze, no dehydration or browning, piece |
| 144 B | | | | 16.6 | 16.6 | | | | | | | folded inside had green intestine, did not feed panel, was not |
| 144 C | | | | 14.8 | 14.8 | | | | | | | quite sure of bacterial action. |
| 154 A | Dalles, 4-5-60 | -7° | 16 | 15.7 | 13.7 | 1.85 | 3.39 | 5.4 | 5.7 | 5.5 | 1.641 | Good, light tan, small amount dehydration and browning, inner |
| 154 B | | | | 16.2 | 14.8 | | | | | | | plastic wrap. |
| 154 C | | | | 14.4 | 14.4 | | | | | | | |
| 167 A | Corvallis, 5-11-60 | 0° | 12 | --- | --- | 2.03 | ---- | 5.7 | 6.4 | 6.3 | ---- | Good, white, excellent glaze, no dehydration or browning, vacu- |
| 167 B | | | | --- | --- | | | | | | | um pack, 1 package leaked, no outer carton. |
| 167 C | | | | 12.2 | 11.4 | | | | | | | |
| 170 A | Corvallis, 5-11-60 | 0° | 12 | 12.3 | --- | 1.46 | ---- | 6.1 | 6.3 | 6.4 | 0.059 | Excellent, vacuum pack, white, no browning, no dehydration. |
| 170 B | | | | 12.3 | --- | | | | | | | |
| 195 A | Medford, 5-27-60 | -5° | 16 | 16.6 | --- | 3.32 | 4.78 | 5.7 | 6.0 | 6.1 | ---- | Excellent, white, good glaze, no dehydration or browning, |
| 195 B | | | | 16.1 | 16.0 | | | | | | | inner plastic wrap. |
| 195 C | | | | 16.3 | 16.0 | | | | | | | |

Table 9. Market Quality of Frozen Sole (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 206 A | Medford, 5-26-60 | 0° | 16 | 16.6 | --- | 2.45 | 2.84 | 4.3 | 6.4 | 6.1 | ---- | Excellent, white, no browning, no dehydration except where |
| 206 B | | | | 15.8 | 15.7 | | | | | | | inner plastic wrap did not cover fish, tasters complained of |
| 206 C | | | | 16.3 | 15.9 | | | | | | | iodine flavor. |

Table 10. Market Quality of Frozen Fishsticks

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 10-27-59 | -10° | 14 | --- | --- | --- | --- | 4.1 | 5.5 | 5.3 | ---- | |
| 33 | 12-14-59 | 38° | 14 | --- | --- | --- | --- | 4.0 | 5.3 | 5.3 | ---- | |
| 45 | Eugene, 1-7-60 | -13° | 14 | --- | --- | --- | --- | 4.6 | 4.7 | 5.5 | ---- | |
| 80 | Portland, 2-11-60 | 2° | 14 | --- | --- | --- | --- | 5.3 | 5.8 | 5.9 | ---- | |
| 172 | Corvallis, 5-11-60 | 0° | -- | --- | --- | --- | --- | 2.7 | 5.5 | 4.6 | ---- | |

Table 11. Market Quality of Miscellaneous Frozen Fish

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | Newport, 11-28-59 (Rainbow trout) | -20° | 16 | --- | --- | 3.74 | 6.18 | --- | --- | --- | ---- | Very attractive packaging, small amount dehydration, good glaze, white, slight odor, few who tasted estimated 4 - 4.5. |
| 32 | Salem, 12-14-59 (Haddock fillets) | -5° | 16 | 15.7 | 15.0 | 1.29 | 1.57 | --- | --- | --- | ---- | Good, off white, no glaze, no browning, mall amount dehydration at ends, little odor, skin left. |
| 34 | Salem, 12-14-59 (Rainbow trout) | -5° | 10 | --- | --- | 4.16 | 4.29 | --- | --- | --- | ---- | Good, very white, no browning or dehydration, slight odor, few who tasted rated about 4 - 4.5, particularly around belly. |

Table 11. Market Quality of Miscellaneous Frozen Fish (Con't.)

| Lab. Code | Place, Date of Purchase | Box Temp. °F. | Weight (oz.) Declared | Net | Thawed | TBA Number Total | Partial | Panel Score Desire. | Tend. | Rancid. | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 64 | Eugene, 1-7-60 (Dressed smelt) | 15° | 16 | --- | --- | 4.01 | --- | --- | --- | --- | ---- | Poor, d hydration considerable, blood in frozen ice, carton dirty from juices. |
| 76 | Portland, 2-11-60 (Quick-cook shrimp) | 2° | 7 | --- | --- | 0.86 | --- | 5.4 | 4.6 | 6.0 | ---- | |
| 79 A | Portland, 2-11-60 (Swordfish steaks) | 2° | 12 | 12.0 | 10.7 | 1.08 | 2.26 | 4.2 | 4.6 | 5.0 | 4.061 | Good, light tan, large dark meat areas, no dehydration or browning, strong odor. |
| 79 B | | | | 12.0 | 10.9 | | | | | | | |
| 79 C | | | | 12.4 | 11.4 | | | | | | | |
| 132 | 3-19-60 (Haddock fillets) | -5° | 16 | 15.3 | 15.3 | 1.70 | 7.06 | --- | --- | --- | 0.720 | Poor, white yellow, no glaze, dehydration around edges and ends, browning on skinned surface, juice soaked thru carton, fish stuck to carton. |
| 196 | Medford, 5-27-60 (Rainbow trout) | 0° | 10 | --- | --- | 7.40 | --- | 4.6 | 5.3 | 5.2 | ---- | |

Table 12. Market Quality of Fresh Fish

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 72 | Eugene, 1-7-60 (red snapper) | | -- | --- | --- | 2.03 | 8.24 | --- | --- | --- | 0.000 | |
| 73 | 1-7-60 (Salmon steak) | | -- | --- | --- | 2.52 | 115.0 | --- | --- | --- | 0.673 | |
| 103 | Portland, 2-11-60 (Salmon steak) | | -- | --- | --- | 8.46 | 12.75 | --- | --- | --- | 0.171 | Baked poor, dehydration, browning. |
| 159 | Astoria, 4-8-60 (Cod) | | -- | --- | --- | 0.0096 | ---- | 6.0 | 5.8 | 6.6 | 0.165 | Purchased direct. |
| 160 | ---------- (Salmon steak) | | -- | --- | --- | --- | ---- | 5.8 | 6.8 | 6.3 | ---- | |

Table 12. Market Quality of Fresh Fish (Con't.)

| Lab. Code | Place, Date of Purchase | Box. Temp. °F. | Weight (oz.) | | | TBA Number | | Panel Score | | | TMAN | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Declared | Net | Thawed | Total | Partial | Desire. | Tend. | Rancid. | | |
| 166 | Corvallis, 5-9-60 (Rockfish fillets) | | -- | --- | --- | 2.06 | 2.25 | 6.00 | 6.1 | 6.3 | ---- | |
| 178 | Corvallis, 5-24-60 (Red snapper) | | -- | --- | --- | 1.30 | ---- | 5.5 | 5.8 | 5.7 | ---- | |
| 197 | Corvallis, 6-26-60 (Salmon steak) | | -- | --- | --- | 2.88 | 6.44 | 6.1 | 6.6 | 6.5 | ---- | |
| 74 | Eugene, 1-7-60 (Salmon steak) | | -- | --- | --- | 1.57 | 6.26 | --- | --- | --- | 0.272 | |
| 99 | 2-11-60 (Salmon steak) | | -- | --- | --- | 2.49 | 8.81 | --- | --- | --- | 0.089 | |
| 107 | Corvallis, 3-9-60 (Perch) | | -- | --- | --- | .70 | --- | 4.8 | 5.6 | 6.0 | ---- | |
| 160 | Corvallis, 5-4-60 (Salmon steak) | | -- | --- | --- | 1.45 | --- | 6.0 | 6.6 | 6.3 | 0.177 | |
| 165 | Corvallis, 5-9-60 (Salmon steak) | | -- | --- | --- | 2.22 | 3.17 | 6.1 | 6.5 | 6.2 | ---- | |
| 171 | 5-11-60 (Sole fillet) | | -- | --- | --- | 2.68 | --- | 5.5 | 6.4 | 6.2 | ---- | |
| 185 | Medford, 5-26-60 (Salmon steak) | | -- | --- | --- | 6.26 | 77.6 | 2.5 | 4.5 | 3.0 | ---- | Frozen after purchase, appeared very poor at time of purchase. |