2012 Prince William Sound Processing Survey

Prepared for

Copper River Prince William Sound Marketing Association

April 2013

Prepared by

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Please cite as: Northern Economics, Inc. *2012 Prince William Sound Processing Survey*. Prepared for Copper River Prince William Sound Marketing Association. April 2013.

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Abbreviations

ADF&G	Alaska Department of Fish and Game
CRPWSMA	Copper River Prince William Sound Marketing Association
PWS	Prince William Sound
RSW	Refrigerated Sea Water

1 Introduction

The Copper River/Prince William Sound Marketing Association (CRPWSMA), through Northern Economics, Inc., surveyed processors in the Prince William Sound (PWS) region to learn more about quality and chilling-related aspects of the regional salmon fisheries. The survey focused on the 2012 fishing season and asked respondents to provide data on volumes and quality of purchased fish, as well as opinions regarding the fishery. This report summarizes the information attained through the 2012 survey and builds upon the data analyzed from the 2011 inaugural survey.

CRPWSMA, formed in 2005, is Alaska's first Regional Seafood Development Association. The association, which represents fisheries within the PWS region, has five strategic priorities: brand enhancement, quality enhancement, cooperative partnerships, research & education, and organizational competence. This survey targets the second of these objectives, quality enhancement.

1.1 Results

The 2012 survey instrument consisted of 20 questions about processor operations in PWS; specific focus was placed on the chum and sockeye harvests in the Coghill and Eshamy districts. The survey captured raw product data, chilling characteristics, quality characteristics, and respondents' opinions of trends and priorities within the fishery.

The results of the second annual CRPWSMA survey showed the following:

- Of the ten processors contacted, two declined to participate, and one did not provide complete responses. Therefore, the study examines seven survey respondents. Survey responses represented approximately 5.4 million fish from Eshamy and Coghill District gillnetters.
- Total purchased product from the Eshamy and Coghill districts in 2012, as reported by processors, was more than double the reported 2011 volume at approximately 41.5 million pounds[1].
- Chilling is one of the critical elements to producing good quality salmon. Within the PWS salmon harvesting region, nearly all fish are marked as "iced and bled." However, on average, processors estimated that only half (55 percent) of the total raw product weight reported in 2012 was considered to be properly chilled by permit holders.
- We note that permit holders chilled substantially more fish this year and that processors recognized improved quality this year in their open-ended responses.
- Processors report that chilling practices for sockeye are more prevalent than those for chum. When asked what percentage of sockeye is properly chilled, the median value reported for the Eshamy district was 60 percent and the median value reported for the Coghill District was 70 percent. For chum the median value was 50 percent in both of the study districts.
- When asked what a proper chilling temperature is, average responses yielded a temperature range of between 33 and 41 degrees. We note that the high end of this range is 2 degrees warmer than last year.

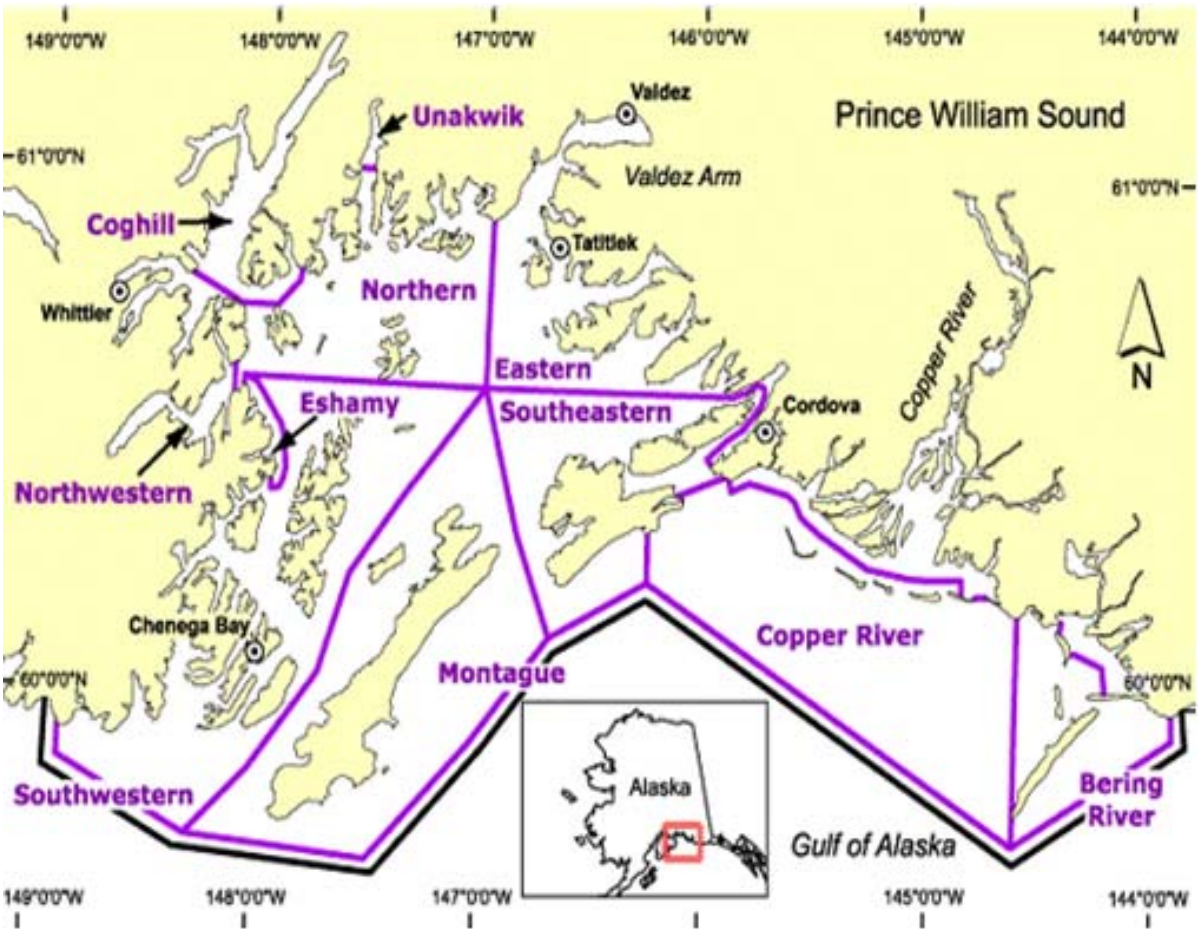
[1] We note that this amount is larger than ADF&G's estimate of total district harvest. Thus, we suspect that ADF&G will revise their figures upward or that our sample has non-district fish in it.

- Processors reported that 76 percent of fish are chilled with layered ice prior to delivery, 21 percent are chilled using slush ice systems, and only 3 percent are chilled using Refrigerated Sea Water (RSW).
- In 2012 almost all survey respondents reported that the amount of ice available to permit holders for chilling in PWS is inadequate. There was also an increase in the number of respondents that reported ice availability as highly inadequate. None of the respondents reported ice availability being more than adequate.
- Salmon deliveries in the first third of the 2012 season were 28 percent more likely to be chilled than deliveries received in the peak of the season. Similarly, deliveries in the last third of the season were 16 percent more likely to be chilled. This is a shift from 2011 where salmon deliveries in the first third of the season were 34 percent more likely to be chilled and deliveries in the last third of the season were 13 percent more likely to be chilled.
- Based on survey responses, approximately 79 percent of the reported raw product purchased from the gillnet fishery was considered #1 grade fish in 2012. An additional 16 percent was considered #2 grade fish, and the remaining 7 percent was considered other grades. The difference in salmon grades translates into differences in wholesale value. The discount for product made with a #2 fish relative to a #1 fish ranges between 5 and 50 percent depending on the type of product.

2 The Fisheries

The PWS Management Area, (Area E) includes all coastal waters and inland drainages entering the Gulf of Alaska between Cape Suckling and Cape Fairfield, encompassing approximately 38,000 square miles. (Botz and Sheridan 2011) For the purpose of regulating salmon harvests, the area is divided into eleven management districts, as shown in Figure 1. All five species of salmon (King or Chinook, Sockeye, Coho, Pink and Chum) are harvested in the region.

Figure 1. Prince William Sound Salmon Districts

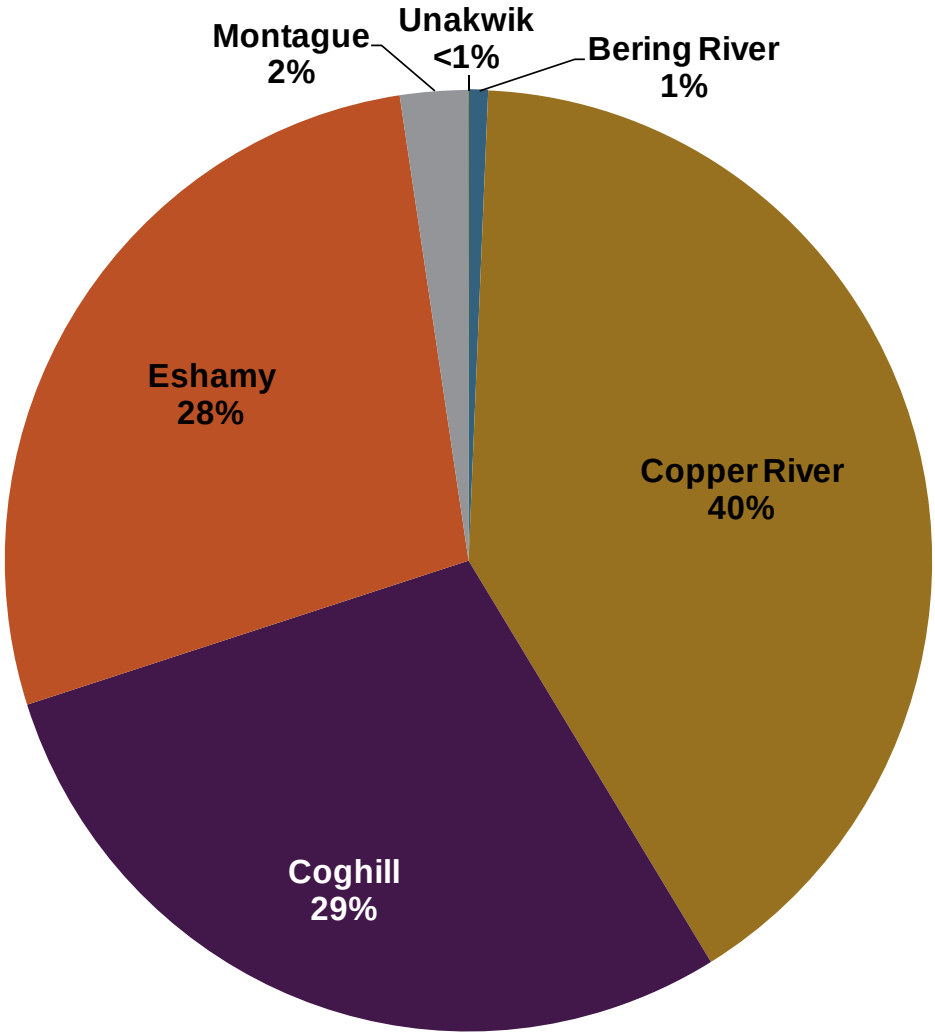


Source: ADF&G 2012b

Gear for the PWS commercial salmon fisheries includes drift gillnet, set gillnet and purse seine only. Driftnetters are allowed to fish the Bering River, Copper River, Coghill, Unakwik and Eshamy Districts. Setnetters are in the Eshamy district only. Seiners fish in the Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague, and Southeastern districts. (Botz and Sheridan 2011)

For the purpose of this report we focused on two specific gillnet fisheries, Eshamy and Coghill, and two specific species, sockeye and chum. The Eshamy and Coghill districts are the areas of focus because these areas have the largest gains to be made from increased chilling practices. While the Copper River district is the regional leader in harvest value (Figure 2), much of the product harvested in this region is already properly chilled and bled. Copper River salmon has been successfully marketed as a high-quality product, and efforts to properly ice and transport these fish have led to a premium market price. (Rosen 2008)

Figure 2. Relative Gillnet Harvest Values by Management Area in the Prince William Sound, 2012



Note: Values include only gillnet portion of area harvests.
Source: Northern Economics, Inc. using Moffitt 2012 (ADF&G)

Table 1. Increase/Decrease in Drift Fishery District Harvest Values, 2011-2012

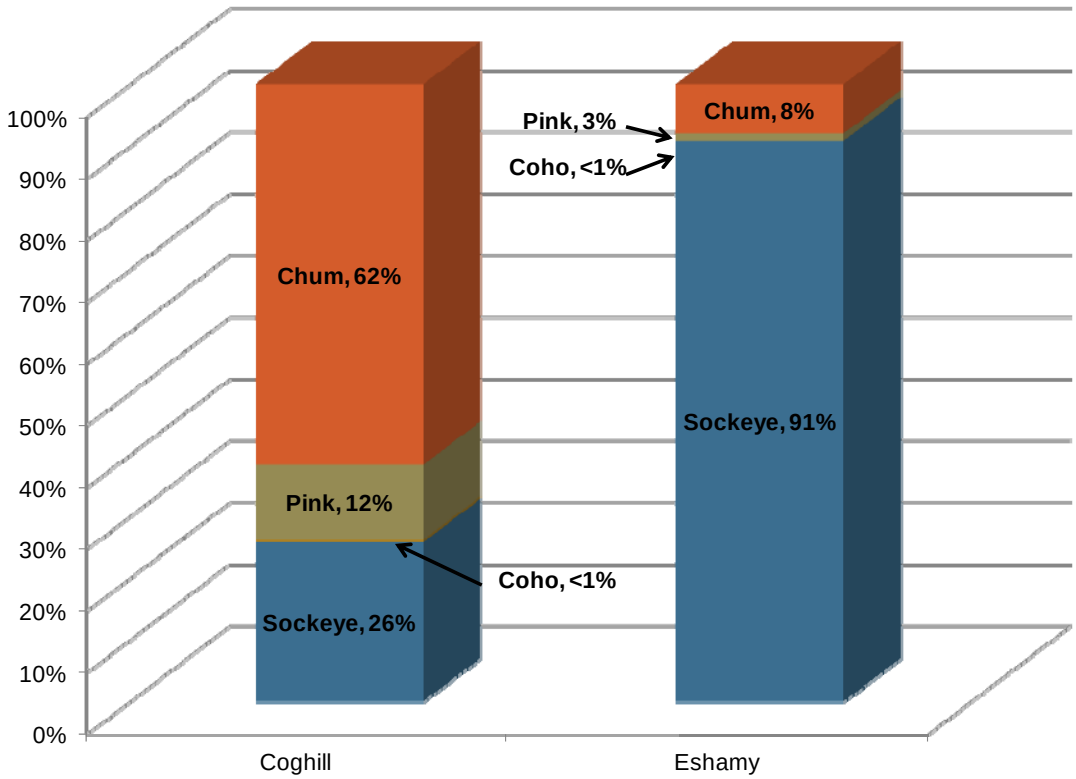
Drift Fisheries	2011 $	2012	Increase/Decrease %
Bering River	125,013	398,328	219
Copper River	24,977,065	23,715,563	-5
Coghill	10,501,717	16,864,412	61
Eshamy	10,471,682	16,117,700	54
Montague	676,977	1,381,162	104
Unakwik	15,160	9,908	-35
Total	46,767,614	58,487,075	25

Note: Values include only gillnet portion of area harvests.
Source: Northern Economics Inc. using ADF&G 2012

Within the Coghill and Eshamy districts, chum and sockeye comprise the majority of the harvest value. Using Alaska Department of Fish and Game (ADF&G) harvest counts, species size and weight averages, and annual prices, the study team estimates that the PWS gillnet fleet accounts for approximately $16.8 million, or 67 percent of the harvest value in the Coghill district, and $16.1 million in harvest value in the Eshamy district. Remaining volumes in the Coghill district are harvested by purse seiners.

Figure 3 shows relative gillnet harvest values by species; sockeye and chum are clearly the two most valuable species in the fisheries.

Figure 3. Relative Harvest Values by Gillnet Species



Note: Figure does not include salmon harvested for hatchery cost recovery.
Source: Northern Economics, Inc. using Moffitt 2012 (ADF&G)

3 Survey Results

In 2012 there were ten regional processors who were contacted to participate in the CPWSMA survey. These include:

- Copper River Seafoods
- Great Pacific Seafoods
- Icicle Seafoods
- Inlet Fish Producers
- Ocean Beauty Seafoods
- Pacific Star
- Peter Pan Seafoods
- Snug Harbor Seafoods
- Star Fisheries
- Trident Seafoods

Of these ten regional processors, eight agreed to participate in the survey, but only seven submitted complete responses. These responses represented approximately 41.5 million pounds of raw product (round weight fish) from the Eshamy and Coghill district gillnetters (Table 2). We note that this amount is larger than ADF&G's estimate of total district harvest. Thus, we suspect that ADF&G will revise their figures upward or that our sample has non-district fish in it.[2]

Table 2. Reported Eshamy and Coghill Gillnet Harvest (in Pounds), 2012

Species	Eshamy	Coghill	Total
Sockeye	5,486,420	1,811,006	7,297,426
Chum	7,364,118	12,736,463	20,100,581
Pink	8,504,292	4,811,107	13,315,399
Coho	409,458	204,338	613,796
Chinook	100,212	40,624	140,836
Total	**21,864,500**	**19,603,538**	**41,468,038**

Source: Northern Economics, Inc. using Moffitt 2012 (ADF&G)
* Numbers may not sum to total due to rounding.

In last year's survey (2011) the volumes of sockeye and chum reported by survey respondents were inconsistent in that some processors reported volumes from only the Eshamy and Coghill districts, while other reported total volumes purchased from the entire PWS gillnet fishery. This year the study team was able to reformat a number of questions to illicit responses that are easier to compare on both a species and location basis.

3.1 Chilling

Chilling is one of the critical elements to producing good quality salmon. It has long been known that fresh-caught salmon retain better quality if properly chilled soon after being harvested. "Proper cooling of the catch is the most important action that a fisherman can take. Chilling reduces the two most frequent causes of quality loss: bacterial spoilage and enzyme activity." (Crapo 1986)

Within the PWS salmon harvesting region, nearly all fish are marked as "iced and bled." The study team understands that a premium is given to chilled and bled fish, but that enforcement of harsh

[2] We had the same issue in the BB_RSDA survey this year.

standards for chilling could put processors at a disadvantage when competing for delivery volumes. In light of this, the study team asked processors the following:

> *What percentage of total raw products noted in Q5 [from gillnet fisheries in the Eshamy district] and Q6 [from gillnets fisheries in the Coghill district] was properly chilled by the permit holder?*

Respondents' answers to this question varied significantly, from a low of 0 percent to a high of 95 percent. On average, processors estimated that harvesters properly chilled 55 percent of the total raw product weight (22.7 Mlb as shown in Table 3) prior to delivery. In 2011 respondents estimated that 60 percent of the raw product that they bought was properly chilled. The study team notes that the 2012 total chilled product weight increased, and attributes the percentage drop to a larger overall harvest.

Table 3. Total Harvest and Amount Properly Chilled (in Thousands of Pounds), 2012

	Eshamy Raw Pounds			Coghill Raw Pounds			Total Raw Pounds		
Species	Harvest	Properly Chilled	%	Harvest	Properly Chilled	%	Harvest	Properly Chilled	%
Sockeye	5,486	4,049	73.8	1,811	1,251	69.1	7,297	5,300	72.6
Chum	7,364	3,190	43.3	12,736	6,628	52.0	20,100	9,818	48.8
Pink	8,504	5,028	59.1	4,811	2,219	46.1	13,315	7,247	54.4
Coho	409	123	30.1	204	202	99.0	613	325	53.0
Chinook	100	0	0.0	41	40	97.6	141	40	28.4
Total	**21,865**	**12,390**	**56.7**	**19,604**	**10,340**	**52.7**	**41,469**	**22,730**	**54.8**

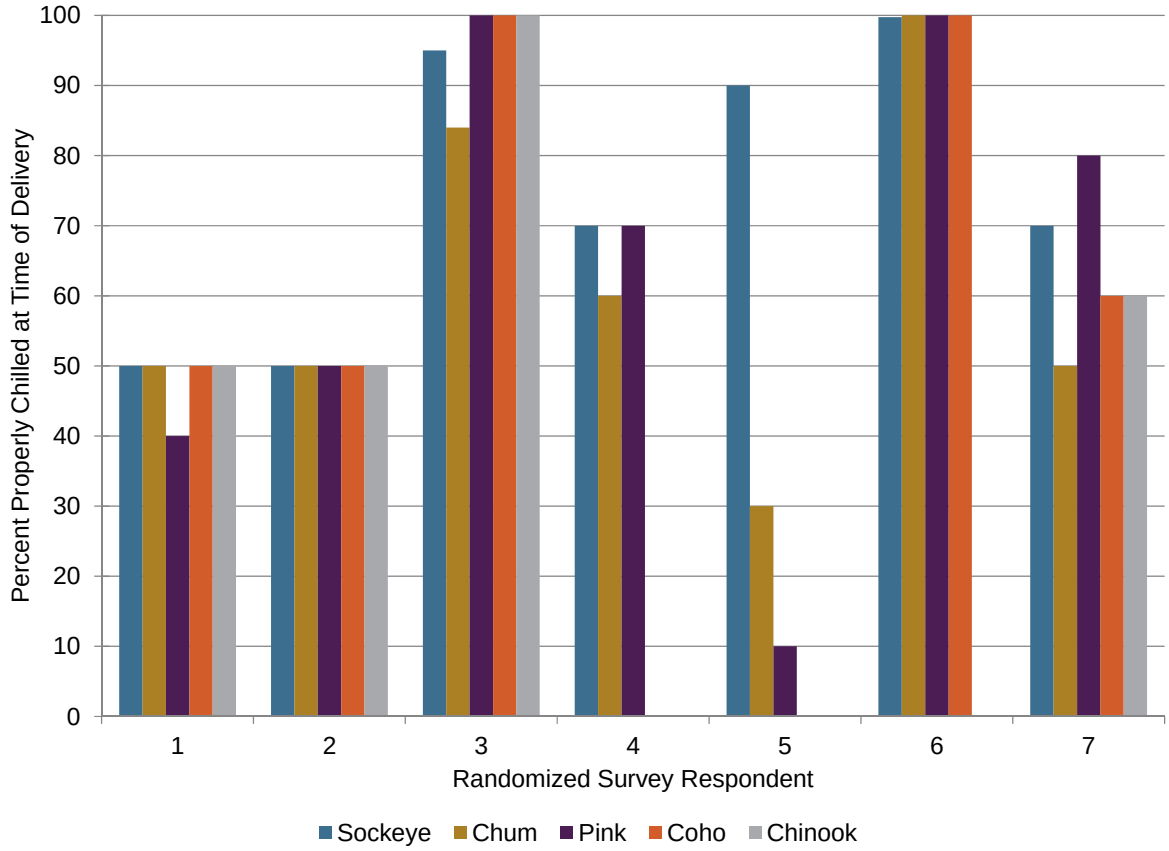
Source: Northern Economics, Inc. 2013

Figure 4 and Figure 5 illustrate the anonymized responses received from processors. When asked about chilling by species, respondents stated that the reported chilling practices for sockeye are more prevalent than those for chum. When asked what percentage of sockeye is properly chilled, the median value reported for the Eshamy district was 60 percent, though percentages ranged from as high as 85 percent to as low as 20 percent. The median value reported for the Coghill district was 70 percent, with the responses ranging from 50 to 95 percent.

Results for chum were a good deal lower with most respondents reporting less than 70 percent of chum volumes being properly chilled by harvesters in both Eshamy and Coghill Districts. The median value of percentage of chum properly chilled was 50 percent, and ranged from 17 to 85 percent.

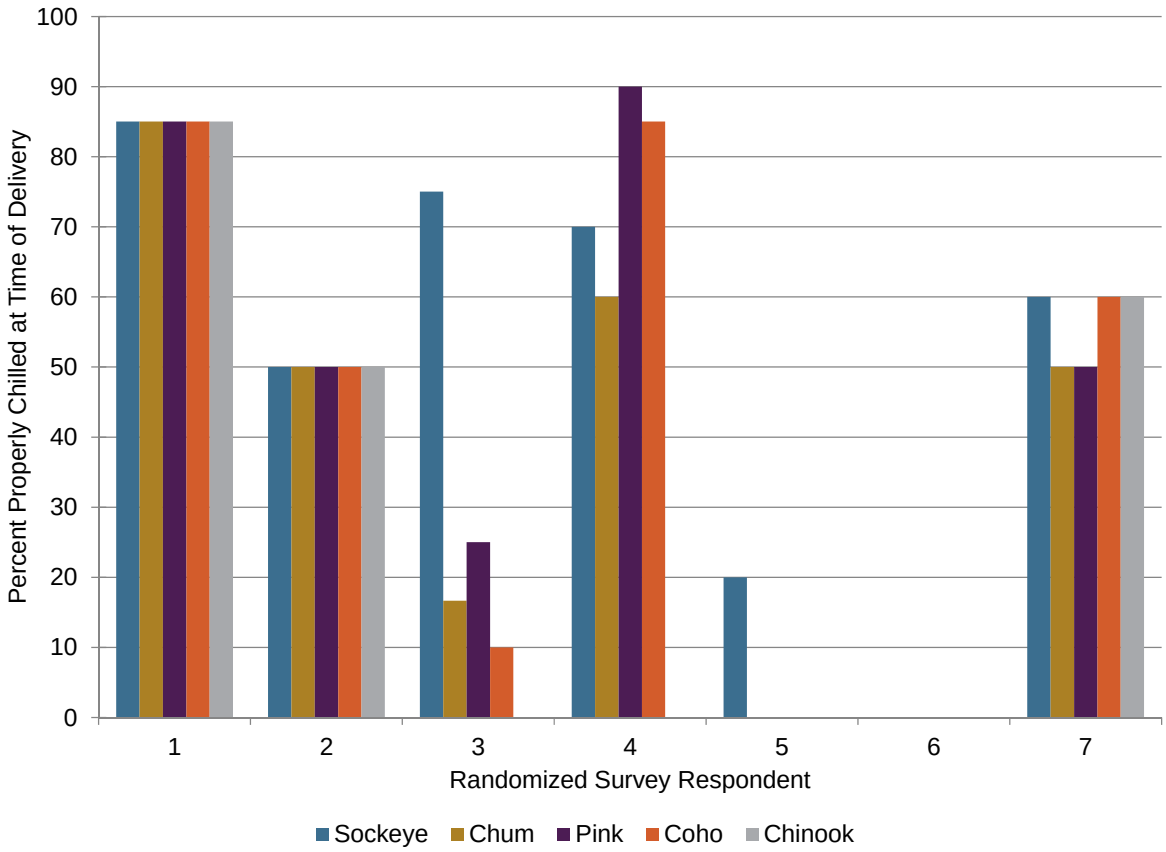
In 2011 the study team noted noted much wider variations in the percentages of chum reported as properly chilled when compared to sockeye. This year we note that the portion of the harvest properly chilled by species is fairly consistent by processors.

Figure 4. Proper Chilling by Species: Coghill 2012



Source: Northern Economics, Inc. 2013.

Figure 5. Proper Chilling by Species: Eshamy 2012



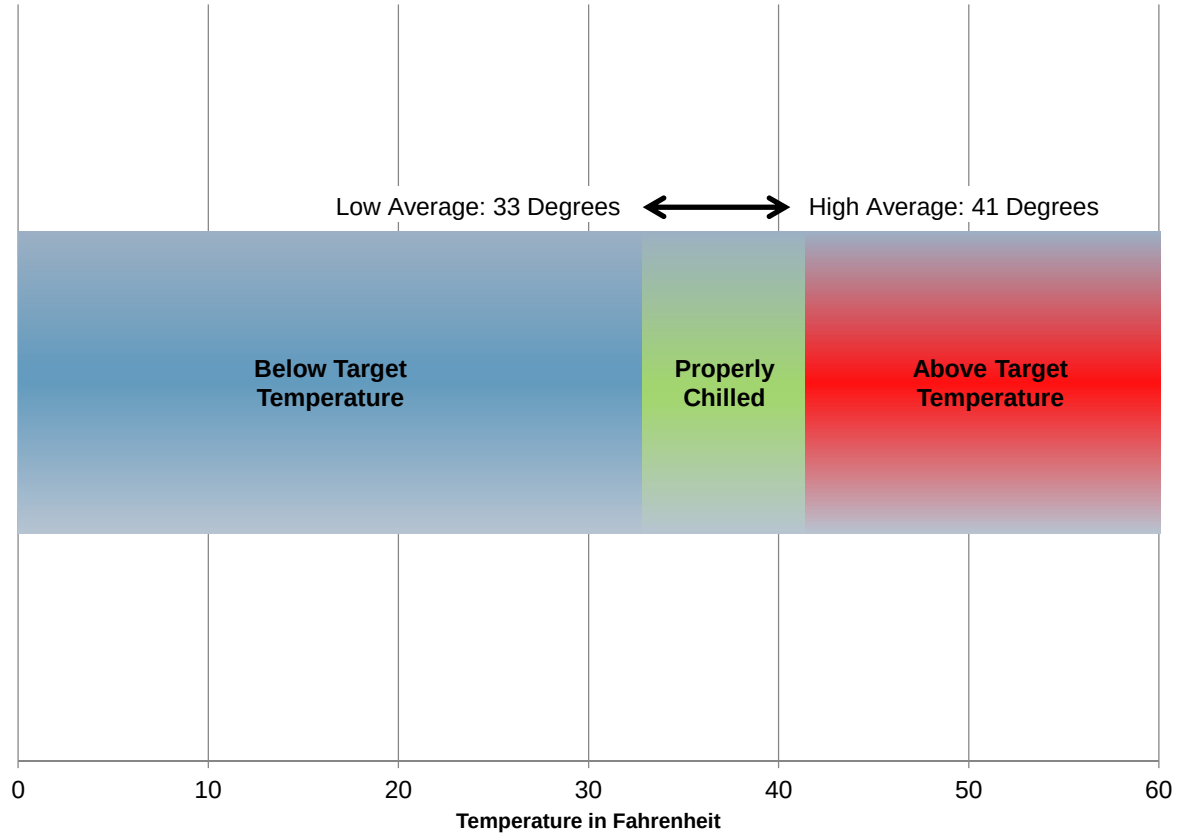
Source: Northern Economics, Inc. 2013.

To gauge what "properly chilled" means to PWS processors, the study team asked the following:

> *What do you think is the temperature range (in degrees Fahrenheit) for a permit holder to chill product to in order for the product to be considered "properly chilled" prior to the point of delivery?*

While studies have been conducted to determine the ideal chilling temperature for salmon, the practical definition of "properly chilled" remains somewhat subjective. The seven respondents answered with seven different temperature ranges for "properly chilled." The lowest of the low temperatures submitted was 32 degrees while the highest of the high range of temperatures was 45 degrees. As noted in Figure 6, the properly chilled temperature zone is between 33 and 41 degrees when we average survey responses. Last year the properly chilled zone ranged between 33 degrees and 39 degrees. The survey team wonders if processors raised their target zone this year to accommodate the larger harvest. We suggest this might be a small topic of conversation for the CRPWSMA.

Figure 6. Proper Chilling Temperature



Source: Northern Economics, Inc. 2013.

3.2 Chilling Methods and Timing

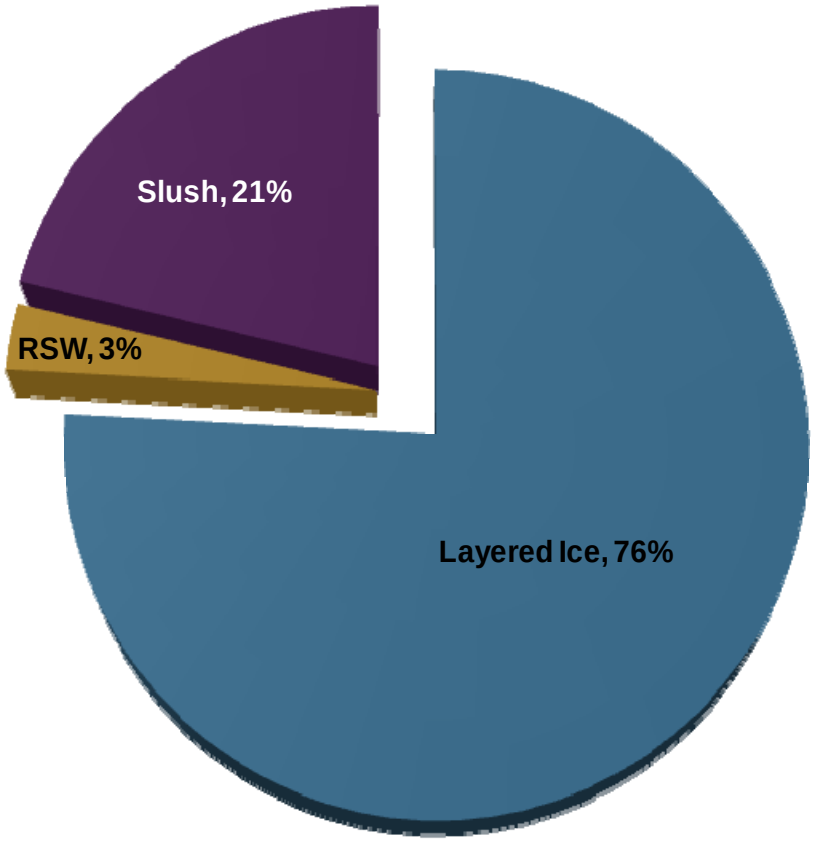
In practice, chilling salmon requires an investment of either money or time, or both. Refrigerated Sea Water (RSW) systems require a capital investment in the thousands, plus the time required for installation. Slush and layered ice require the fishermen to spend time getting ice from tenders and ice barges, and take up space in the hold that could otherwise be used for more fish. These costs are balanced with the benefit of providing chilled salmon to processors, which yields a higher price. As noted in CRPWSMA's *Prince William Sound Quality Guidelines*, quality handling has a direct impact on the value of the harvest; as a collective group, fishermen may see better returns through better handled salmon.

To assess how product in the study area is currently chilled, the survey asked:

> *What percentage of the chilled raw product your company purchased from gillnet boats in the Eshamy and Coghill Districts in 2012 was from each of the following chilling methods [Layered Ice, Slush Ice or RSW]?*

Processors reported that the vast majority (76 percent) of the chilled raw product they purchase is chilled using layered ice. As shown in Figure 7, only 3 percent of fish are chilled with RSW and 21 percent are chilled with a slush ice system.

Figure 7. Gillnet Chilling Methods, 2012



Source: Northern Economics, Inc. 2013.

The prevalence of layered ice may be explained, at least in part, by the competitive nature of the fishery. As it currently stands nearly all salmon harvested in the study area are marked "iced and bled" on fish tickets. With little or no price difference yielded from slight variations in delivery temperatures, it may not yet be worth the capital investment to install RSW systems.

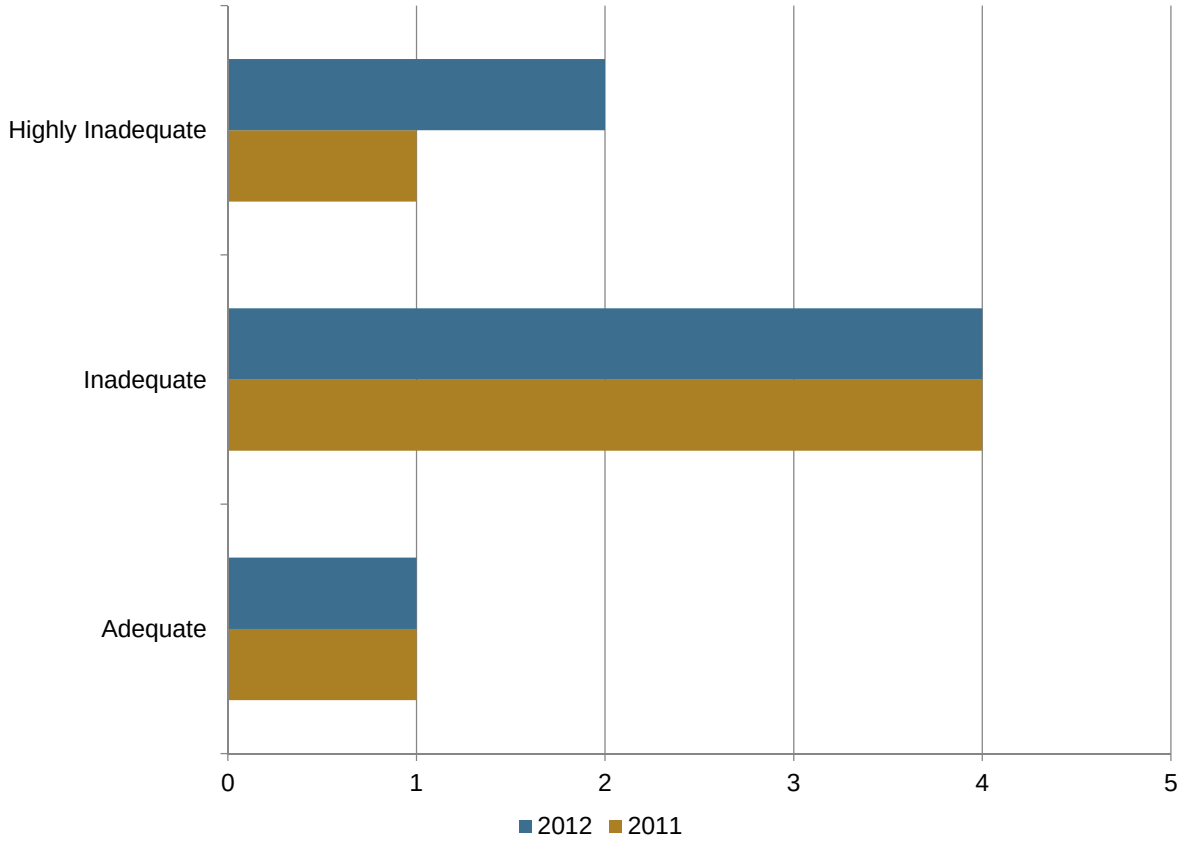
Harvesters in the study area have access to ice via tenders and the PWS ice barge. The PWS ice barge started in 2009 and is supplied with ice from regional processors. In each of the last three years of operation, ice delivery has increased. In 2009, 202 totes were delivered, in 2010, 287 were delivered, and in 2011, 331 were delivered. Last year (2012) 262 totes of ice were delivered. This represents a 20 percent decrease from 2011, despite a significant increase in the size of the harvest. According to the 2012 PWS Ice Barge Report, the decline in ice deliveries in 2012 can be attributed to a newer, smaller barge and cooler weather conditions.

To gauge the adequacy of the amount of ice available to harvesters, the survey asked the following:

How would you describe the amount of ice available to permit holders for chilling in Prince William Sound?

Response options ranged from highly inadequate to much more than adequate. Of the seven responses received, none reported ice availability being more than adequate. As shown in Figure 8, most respondents believe the volume of ice to be inadequate with an increasing the number who said "highly inadequate".

Figure 8. Adequacy of Ice Availability, 2012



Source: Northern Economics, Inc. 2013.

The survey asked processors to gauge what percentage of the total raw product purchased from the gillnet permit holders in the Prince William Sound was chilled within the first third, peak, and last third of the season. Using the results from this question, the study team derived an index, the results of which are shown in Table 4.

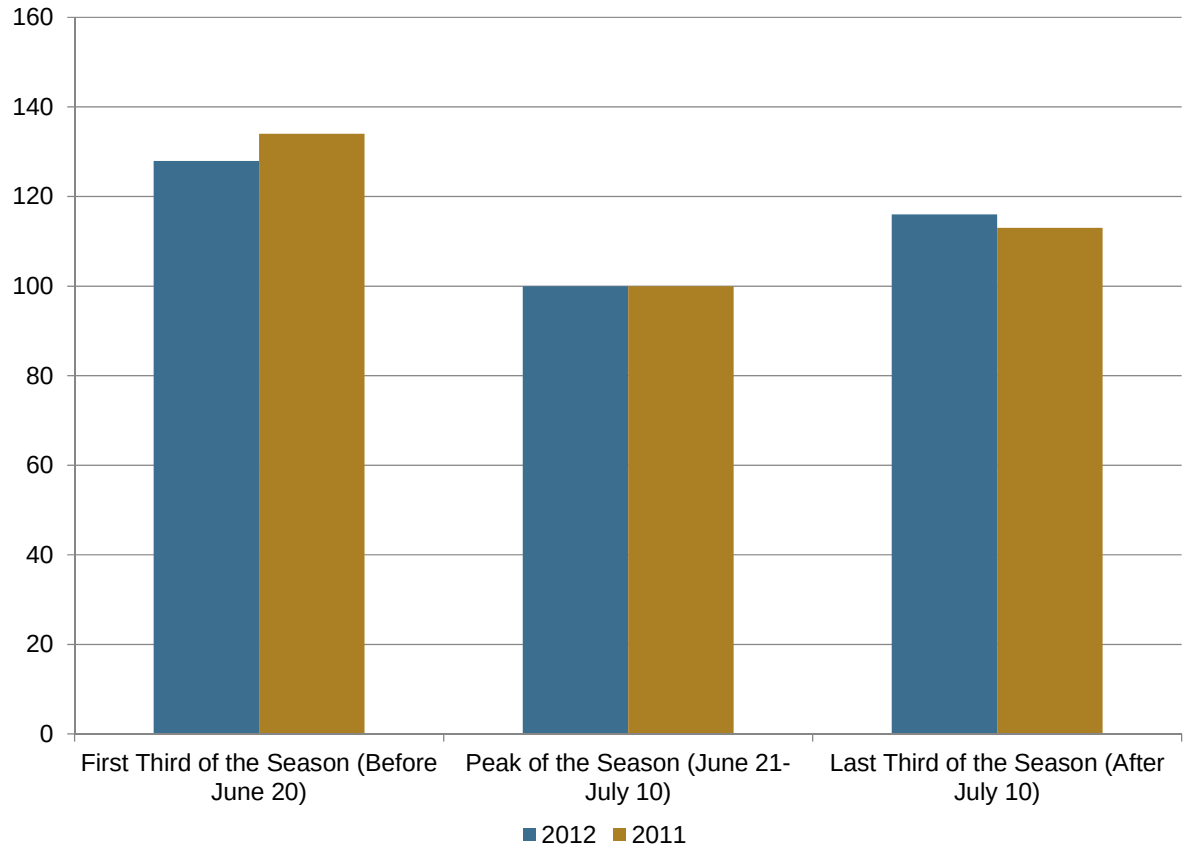
The index tells us that salmon deliveries were 28 percent more likely to be chilled in the first third of the season, and 16 percent more likely to be chilled in the last third of the season, as compared to the middle of the season. During the season peak, it may be difficult for harvesters to keep up their rates of chilling due to harvest volume and pace. We note that these numbers are comparable to the data recorded in the 2011 season even though this year's reported harvest is quite a bit larger. We recommend CRPWSMA consider dropping this question in favor of a new question in the next year or two if it appears that the responses to this question will not vary from year to year

Table 4. Chilling Through the Season (Indexed), 2012

	First Third of the Season (Before June 20)	Peak of the Season (June 21-July 10)	Last Third of the Season (After July 10)
2011	134	100	113
2012	128	100	116

Source: Northern Economics, Inc. 2013.

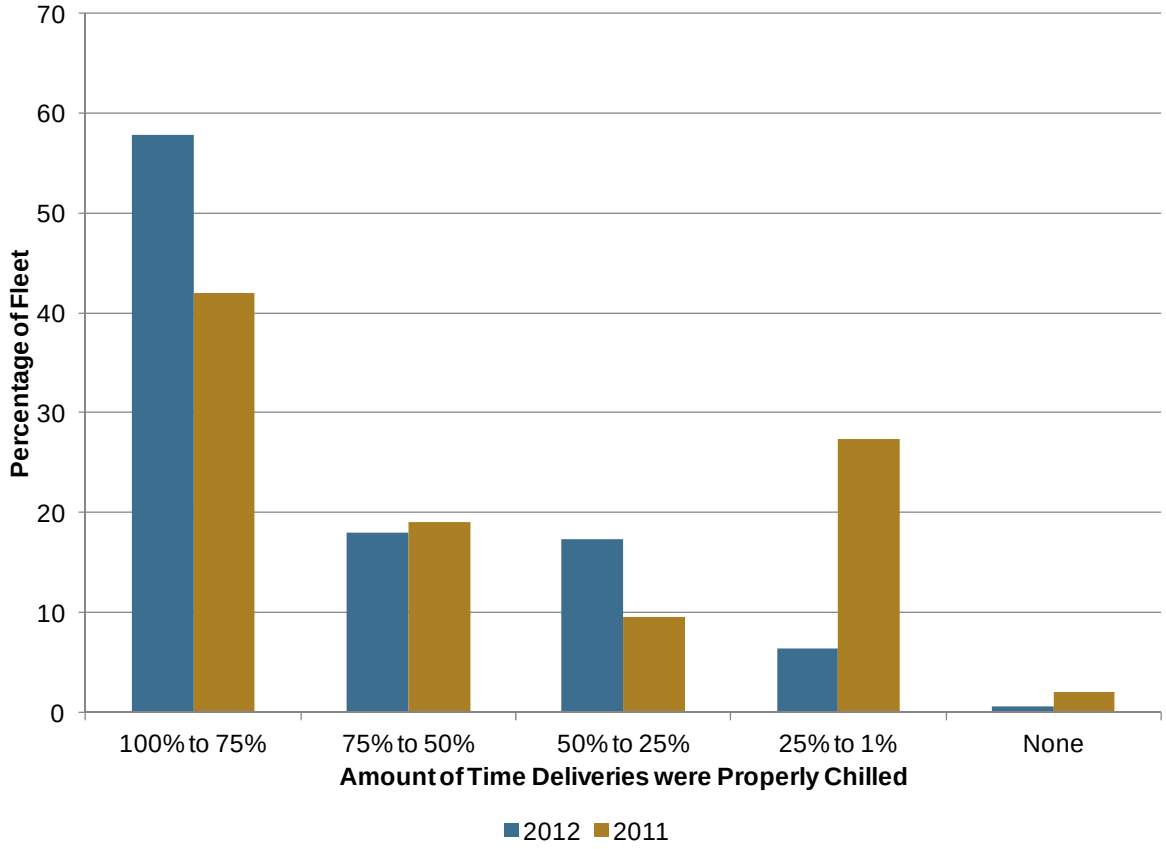
Figure 9. Chilling Through the Season (Indexed), 2012



Source: Northern Economics, Inc. 2013.

The survey asked respondents to estimate how consistently their gillnet permit holders chilled their catch. The survey also asked this question in 2011, and the 2012 data show a marked increase in the overall consistency of chilling by permit holders from last year (Figure 10). This year, 76 percent of the reported gillnet fleet chill their product more than half of the time and only 1 percent do not chill their product at all. In 2011 respondents reported that only 61 percent of gillnet fleet chilled their product more than half of the time. We note that the percentage of respondents that chilled one quarter of the time or less fell from 27 percent to just 6 percent. This shift is a remarkable one for such a short time period. We believe this result is worthy of further exploration and discussion.

Figure 10. Consistency of Chilling, 2012



Source: Northern Economics, Inc. 2013.

3.3 Quality

The survey asked respondents about the relationship between handling practices and quality. For the purpose of our analysis, quality is measured by grades of fish in order to better understand how handling and chilling impact fish product values. Fish that retain the highest quality after being harvested are graded #1. A #1 grade fish is generally equivalent to a "Premium" or "Grade A" fish and is characterized by being properly bled and chilled after harvesting, retaining over 85 percent of its gills, and preserving its natural shape and color. A #2 grade fish typically represents a "Grade B" or "Grade C" fish, meaning it is still acceptable for sale on the market, but possesses a higher combination of defects, which reduces its quality.

Based on survey responses, approximately 79 percent of the reported raw product purchased from the gillnet fishery was considered #1 grade fish in 2012, an increase of 8 percent from the previous year. An additional 16 percent was considered #2 grade fish, and the remaining 7 percent was considered other grades. The difference in salmon grades translates into differences in wholesale value.

To determine the loss in value between a #1 grade fish and a #2 grade fish, the survey asked respondents to describe the proportional value of #2 grade products relative to #1 grade products:

For each of the following product forms, if a fish graded #1 has a wholesale value of 100, what is the approximate wholesale value (0 to 100) that a #2 fish would have?

As with last year, the survey yields interesting results based on the type of product surveyed (Table 5 and Figure 11). The discount for #2 grade product ranges between 5 and 50 percent depending on the type of product. The survey team notes that this range is much broader than last year when discount estimates ranged from 20 percent to 50 percent. At the same time, we notice that the median estimated discount this year is substantially less than year. Last year's medians ranged from 28 percent to 40 percent whereas this year the median discount range is only 20 to 25 percent (see Table 6). The team wonders if this tightness reflects a greater demand for #2s relative to #1s or if the demand for #1s came down relative to #2s. Based on what we know about the strength of the canned market this year, we think the latter may be a better description of what changed this year.

Table 5. Average Percentage Discount from the #1 Wholesale Price, 2012

Product Form	Low Discount (%)	High Discount (%)	Median (%)
Fresh Fillet	-5	-50	-25
Fresh H&G	-20	-45	-25
Frozen Fillet	-5	-40	-20
Frozen H&G	-15	-45	-20

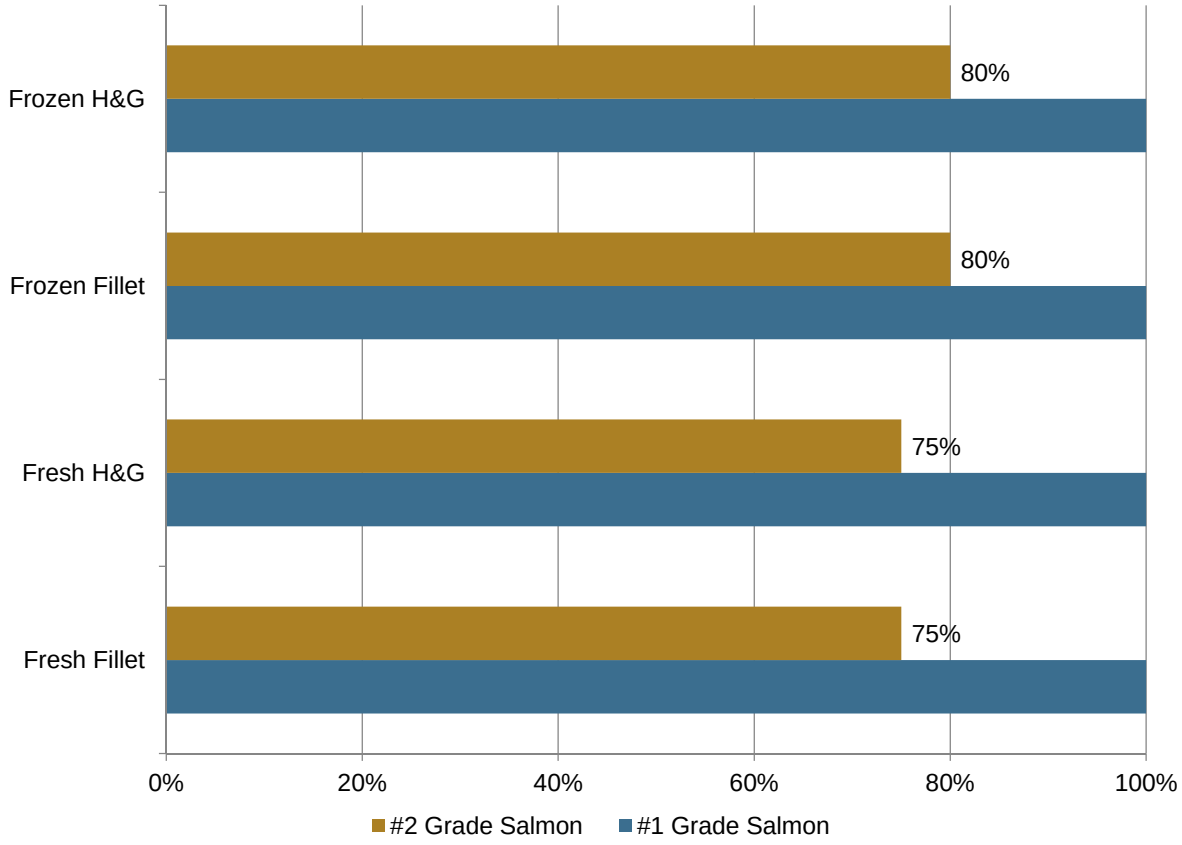
Source: Northern Economics, Inc. 2013.

Table 6. Average Percentage Discount from the #1 Wholesale Price, 2011

Product Form	Low Discount (%)	High Discount (%)	Median (%)
Fresh Fillet	-40	-50	-40
Fresh H&G	-30	-45	-40
Frozen Fillet	-25	-40	-28
Frozen H&G	-20	-50	-35

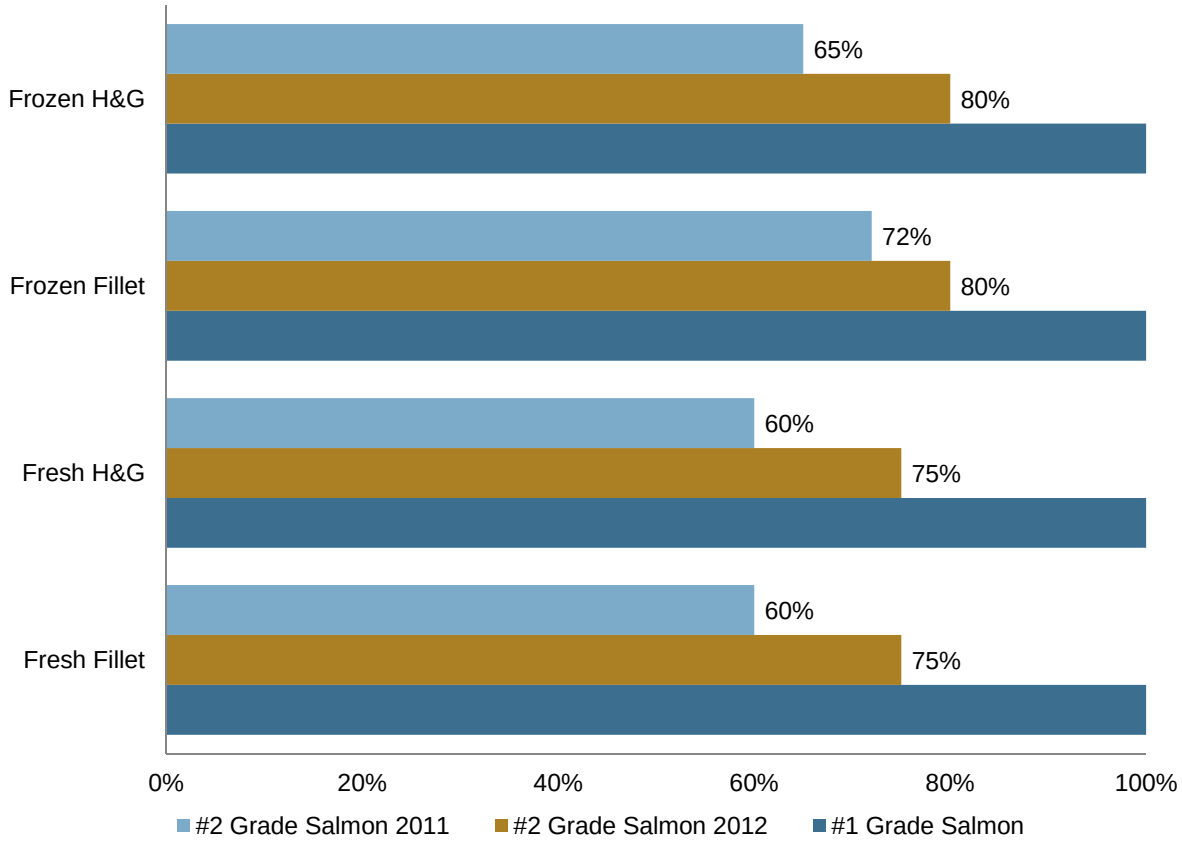
Source: Northern Economics, Inc. 2012.

Figure 11. Average Percentage Value Relative to the #1 Wholesale Price, 2012



Source: Northern Economics, Inc. 2013.

Figure 12. Average Percentage Value Relative to the #1 Wholesale Price, 2012



Source: Northern Economics, Inc. 2013.

The estimated high-end discount for all four product types was between 40 and 50 percent, meaning that in some cases products made from a #2 grade fish would be worth as little as half the value of the same products made from a #1 grade fish. We note that this year the lowest estimates for discounts were associated with fillet product. We suspect that the reason for this narrow difference is that with pre-portioned filleted product, it is very difficult to distinguish between a final form product that came from a #1 grade fish and a #2 grade fish, whereas #1 and #2 H&G product can vary substantially in terms of quality and end use.

The survey sought input on specific policies and practices that increase or lower the value of fish (Table 7). Respondents were asked to rank several different factors believed to affect the percentage of fish graded as #1. Of the eight listed, two factors were shown to significantly lower fish quality: high volume openers and long set lengths. Respondents are in complete agreement that long set times have a moderate effect in lowering the grade of fish.

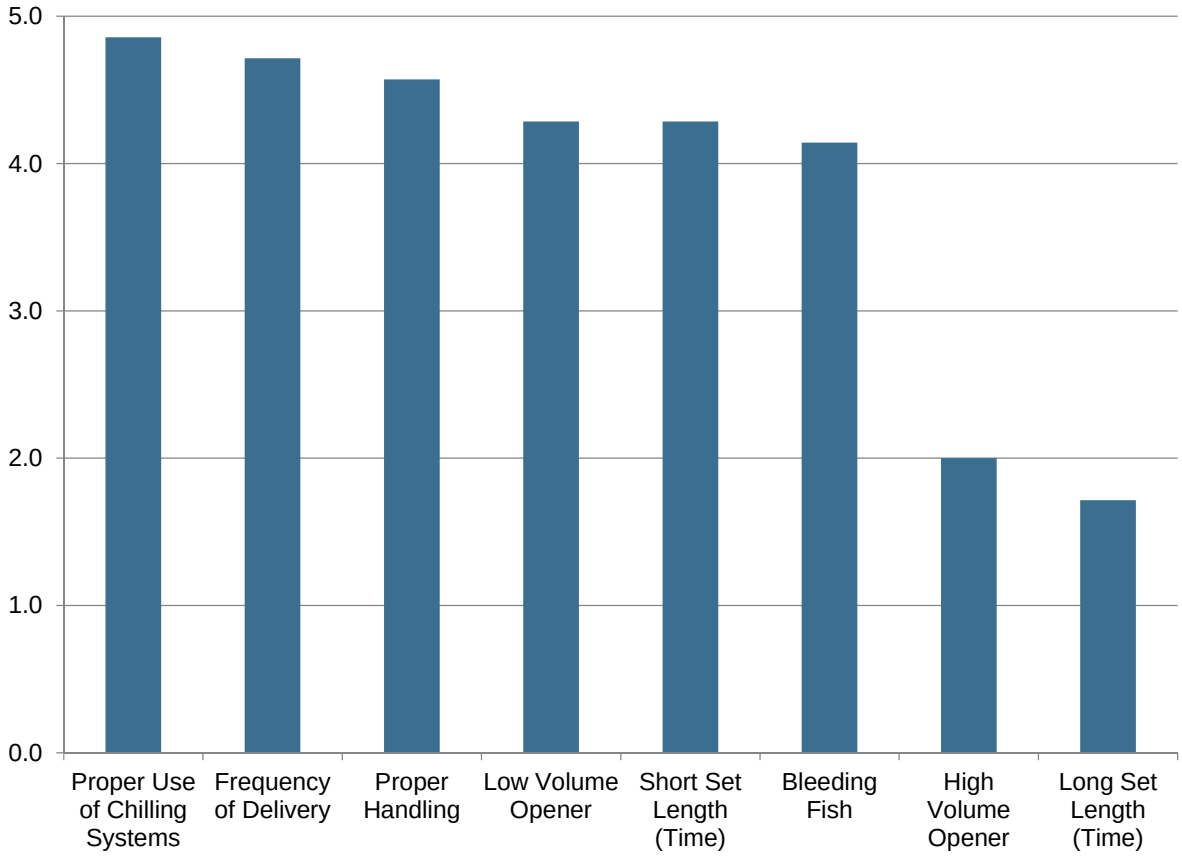
The majority of respondents indicate the remaining six factors increase the value of #1 grade fish. These include low volume openers, proper use of chilling systems, short set length, frequency of delivery, bleeding, and proper handling. The general agreement over which factors are most likely to contribute to better quality harvests provides a useful mechanism for relaying to permit holders how they might increase the quality of their harvest. Results may be used to encourage harvesters to change their handling practices and delivery methods. We note that this year's responses are substantially similar to last year's responses.

Table 7. Factors Contributing to Fish Quality

Factor	Significantly Increases	Moderately Increases	No Effect	Moderately Lowers	Significantly Lowers	Average Score on 1-5 Scale	Percent at Moderately or Significantly Increases
High Volume Opener	0%	14%	0%	57%	29%	2.0	14%
Low Volume Opener	29%	71%	0%	0%	0%	4.3	100%
Proper Use of Chilling Systems	86%	14%	0%	0%	0%	4.9	100%
Long Set Length (Time)	0%	0%	0%	71%	29%	1.7	0%
Short Set Length (Time)	29%	71%	0%	0%	0%	4.3	100%
Increased Frequency of Delivery	71%	29%	0%	0%	0%	4.7	100%
Bleeding Fish	14%	86%	0%	0%	0%	4.1	100%
Proper Handling	57%	43%	0%	0%	0%	4.6	100%

Source: Northern Economics, Inc. 2013.

Figure 13. Factors Contributing to Fish Quality



Source: Northern Economics, Inc. 2013.

3.4 Open-Ended Responses

In addition to gathering data, questions 18 and 20 of the CRPWSMA 2012 survey captured processor priorities and opinions regarding the fishery. These questions asked respondents to summarize a variety of factors that can positively or negatively affect their success within the region. Each question is re-stated below in italics, and processor responses are summarized in the following tables.

Question 18: Please describe what you think are the most important projects that CRPWSMA could undertake.

Themes that are apparent throughout processor's responses are ice availability, frequent delivery times, and continued education (Table 8). There was also positive feedback on some of the quality improvement project that CRPWSMA implemented in 2012. Out of the six full respondents, three highlighted the importance of continued education and one respondent even suggested new educational training focusing specifically on slushing since they see it as the most "effective and practical" way to properly chill fish in the Coghill and Eshamy districts.

Table 8. Important Projects

Comments
Continue to push more frequent deliveries, and continue to educate the fisherman on how important icing and proper handling is.
Nano Ice/Molecular Ice Technology
Second ice barge
The current outreach with pre-season handouts is a big help.
Making ice available
Slushing fish seems to be the most effective and practical way to go, so perhaps CRPWSMA could arrange demonstrations or documentation on how to properly use this method and arrange a group buy for slush bags to lower the cost.

Source: Northern Economics, Inc. 2013.

Question 20: How would you describe the 2012 Eshamy/Coghill seasons? Is there anything about the run, the markets, or other factors that really stood out for you?

The responses to question 20 (Table 9) generally reflect an increase in quality with the caveat that there is still more room for improvement. One respondent explicitly states that the quality of the fish is improving, but during the busiest points of the season the fleet is still reverting back to poor quality practices. A couple of the respondents also highlighted that the market for chums was very competitive in 2012 and the fleet was able to get a good price for the fish they caught.

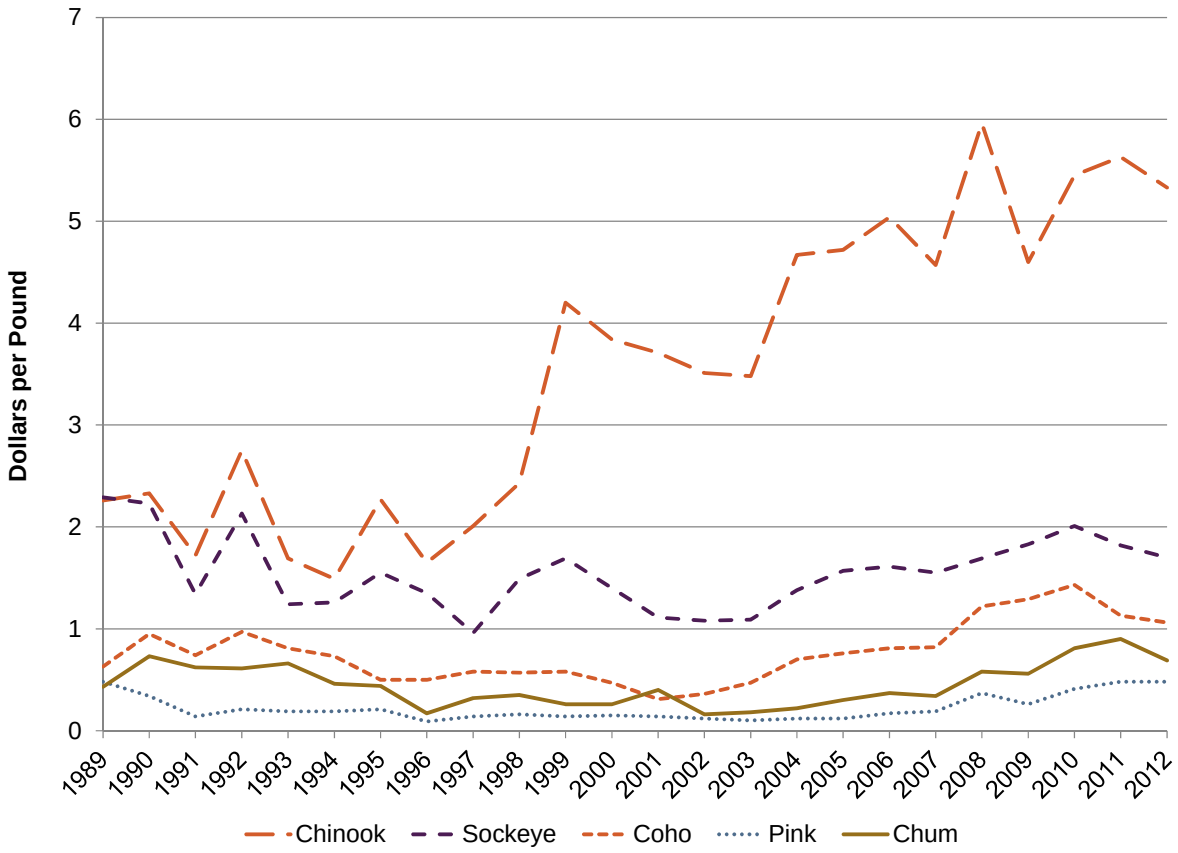
Table 9. 2012 Season Remarks

Comments
[Quality] is starting to get better, but when large runs come in it seems to go out the window.
Coghill and Esamy runs for chums and sockeye where average but quality for both areas improved.
Good Runs, with good quality fish, the fleet really stepped up their efforts to do a better job quality wise this year. Too much competition to buy fish, we end up paying too much for these fish, good for the fleet but hard to make any money on our end.
The 2012 sockeye and chum season was really good. The Chum market was really good and the price for fishermen was good.
Chums can be soft in the beginning of the season and in 2012 they were soft for much of the early season.

Source: Northern Economics, Inc. 2013.

Figure 14 summarizes ex-vessel values for PWS salmon species over the last several decades. In 2012, sockeye salmon yielded an average ex-vessel value of $1.70 per pound in PWS, while chum averaged less than half this amount at $0.69 per pound.

Figure 14. Prince William Sound Ex-vessel Values, 1989-2012



Note: Values are in nominal dollars and have not been adjusted for inflation
Source: ADF&G 2011 and 2012a

4 Recommendations

The below list comprises those items which may be considered as take-aways and lessons learned from the CRPWSMA 2012 Processor Survey.

- In 2012, the value of the Eshamy and Coghill harvests collectively outweighed the value of the Copper River harvest.
- While chilling as a percent of total harvest dropped, the volume of chilled fish increased in 2012. The study team sees this volume increase as a step in the right direction. The CRPWSMA should emphasize the benefits of this evolution and continue to support harvester education.
- CRPWSMA education programs should focus on those factors which processors believe contribute most to fish quality: proper use of chilling systems, increased frequency of delivery and proper handling.
- Given processor feedback regarding the causal effect between large runs and un-chilled fish, CRPWSMA may want to address methodologies for chilling when harvesters are experiencing large volume increases.
- Chilling temperature expectations seem to shift with harvest volumes; this may be the result of processors realistically adjusting their expectations for chilling when runs are large.
- Open-ended responses from processors indicate a generally positive outlook on the increased chilling efforts put forth by harvesters. Phrases such as "quality is starting to get better…" and "good quality fish…" are good signs.
- Processor survey participation needs improvement. While better than last year, it was still difficult to get timely and detailed responses. Should the timing or structure of the survey be changed to better facilitate responses?
- Almost all (97 percent) of the fish delivered as chilled to processors in 2012 required access to ice. Meanwhile, the majority of respondents describe ice availability as inadequate. Increasing ice availability could increase the portion of properly chilled fish.
- Going forward, CRPWSMA may want to ask questions related to the benefits and disadvantages of slush ice chilling versus layered ice.

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Appendix: Survey Instrument

1. Introduction

Welcome to the 2012 Copper River Prince William Sound Marketing Association Survey. This is Year 2 of our study, and we have again designed a survey to document and track quality and chilling related aspects of the Coghill and Eshamy Districts of the Prince William Sound salmon fishery.

Northern Economics will hold all indivdidual responses in confidence. The aggregated survey results will be submitted to the survey sponsor, the Copper River Prince William Sound Marketing Association (CRPWSMA). CRPWSMA will, in turn, distribute the same report that it receives from Northern Economics to each participant who completes the survey.

If you experience problems while completing the survey please call Jonathan King or Alexus Bond at 907-274-5600.

We hope to complete the survey by November 30, 2012.

PLEASE DO NOT INCLUDE SYMBOLS (%, $, etc) IN YOUR ANSWERS.

PLEASE MAKE SURE YOU HIT NEXT AT THE BOTTOM OF EACH PAGE.

1. What is the name of your processing company?

2. What is your name?

3. What is your primary contact phone number?

4. Please enter your email so that we may send you a copy of the survey results.

2. Raw Product

This section asks questions about processors' purchase of raw product (round weight fish) in 2012. Please ensure that all answers are for the 2012 season and refer only to the Coghill and Eshamy District gillnet salmon fisheries.

The survey form does not accept commas, $ signs, decimals, or % symbols. Please enter whole numbers only. For example $1,254, would be entered as 1254 while 50% would be entered as 50.

NOTE THE PAGE WILL NOT ADVANCE IF A REQUIRED SUM TO 100 DOES NOT SUM TO 100 OR IF A % SYMBOL IS INCLUDED IN THE ENTRY.

5. In 2012 how many pounds of total raw product (round weight fish) did your company purchase from the Eshamy District of the Prince William Sound gillnet salmon fishery?

Sockeye (Pounds)	
Chum (Pounds)	
Pink (Pounds)	
Coho (Pounds)	
Chinook (Pounds)	

6. In 2012 how many pounds of total raw product (round weight fish) did your company purchase from the Coghill District of the Prince William Sound gillnet salmon fishery?

Sockeye (Pounds)	
Chum (Pounds)	
Pink (Pounds)	
Coho (Pounds)	
Chinook (Pounds)	

7. Of the pounds you reported in Question 5, what percentage of your raw product purchased in the Eshamy gillnet fishery in 2012 was properly chilled by the permit holder?

Sockeye (Properly Chilled Portion)	
Chum (Properly Chilled Portion)	
Pink (Properly Chilled Portion)	
Coho (Properly Chilled Portion)	
Chinook (Properly Chilled Portion)	

8. Of the pounds you reported in Question 6, what percentage of your raw product purchased in the Coghll gillnet fishery in 2012 was properly chilled by the permit holder?

Sockeye (Properly Chilled Portion)	
Chum (Properly Chilled Portion)	
Pink (Properly Chilled Portion)	
Coho (Properly Chilled Portion)	
Chinook (Properly Chilled Portion)	

9. What do you think is the temperature range (in degrees farenheit) for a permit holder to chill product to in order for the product to be considered "properly chilled" prior to the point of delivery?

Low End of Range (Degrees F)

High End of Range (Degrees F)

10. Of the raw product that you bought from the gillnet fishery, what percentage fell into the following categories in 2012?

#1 Grade Fish

#2 Grade Fish

Other Grades

11. We are interested in how (or if) the portion of raw product that is chilled changes during the season. In each of these time periods, what percentage of the total raw product your company purchased from gillnet permit holders in the Eshamy and Coghill Districts was properly chilled prior to delivery?

First Third of the Season (Before June 20)

Peak of the Season (June 21-July 10)

Last Third of the Season (After July 10)

% Chilled through the Whole Season

***12. What percentage of the chilled raw product your company purchased from gillnet boats in the Eshamy and Coghill Districts in 2012 was from each of the following chilling methods?**

THE TOTAL OF YOUR ANSWERS SHOULD ADD UP TO 100.

If you allocate a percentage to Other, please describe what chilling method you are referring to.

Layered Ice

Slush Ice

RSW

13. CRPWSMA is interested in learning about the proportional difference in the wholesale value of a fish receiving a #2 grade vs. a fish receiving a #1 grade.

We believe that being able to communicate a difference to permit holders will help show the value of improved handling practices. For each of the following product forms, if a fish graded #1 has a wholesale value of 100, what is the approximate wholesale value (0 to 100) that a #2 fish would have?

INFORMED ESTIMATES ARE OKAY!!

	#2 Percentage Value
Fresh Fillet	
Frozen Fillet	
Fresh H&G	
Frozen H&G	

14. CRPWSMA is interested in learning about how different grades of fish generate different product recovery rates. If higher grades of fish allow for the production of a greater volume of wholesale product per pound of raw fish, it could lead to benefits for both processors and permit holders.

We believe that being able to communicate a recovery rate difference to permit holders will help show the value of improved handling practices. For each of the following product forms, if a fish graded #1 provides 100 percent of the maximum product recovery (yield) rate, what portion of that 100 percent maximum does a #2 fish provide?

INFORMED ESTIMATES ARE OKAY!!

	#2 Percentage Product Recovery
Fresh Fillet	
Frozen Fillet	
Fresh H&G	
Frozen H&G	
Pre-portioned Fillets	

15. CRPWSMA is interested in understanding the factors which affect the percentage of fish graded as #1.

Please score these factors according to how they independently affect fish quality. A "1" indicates the factor significantly lowers the portion of #1s and a "5" indicates the factor signficantly increases the portion of #1s.

	1-Significantly Lowers Portion of #1s	2-Lowers the Portion of #1s	3-No Effect on the Portion of #1s	4-Increases the Portion of #1s	5-Significantly Increases the Portion of #1s
High Volume Opener	◯	◯	◯	◯	◯
Low Volume Opener	◯	◯	◯	◯	◯
Proper Use of Chilling Systems	◯	◯	◯	◯	◯
Long Set Length (Time)	◯	◯	◯	◯	◯
Short Set Length (Time)	◯	◯	◯	◯	◯
Increased Frequency of Delivery	◯	◯	◯	◯	◯
Bleeding Fish	◯	◯	◯	◯	◯
Proper Handling	◯	◯	◯	◯	◯

16. Please estimate the percentage of gillnet permit holders (Eshamy and Coghill Districts) in your fleet that fit into the following categories.

Your answers must sum to 100.

75% to 100% of their 2012 deliveries were chilled properly	
50% to 75% of their 2012 deliveries were chilled properly	
25% to 50% of their 2012 deliveries were chilled properly	
1% to 25% of their 2012 deliveries were chilled properly	
None of their 2012 deliveries were chilled properly	

17. How would you describe the amount of ice available to permit holders (Eshamy and Coghill Districts) for chilling in Prince William Sound?

	Highly Inadequate	Inadequate	Adequate	More than Adequate	Much more than Adequate
The amount of ice is	◯	◯	◯	◯	◯

3. Processor Input

CRPWSMA believes that increased communication between processors and permit holders will lead to cooperative opportunities that benefit both groups. CRPWSMA would like processor input via the following questions.

18. Please describe what you think are the most important projects that CRPWSMA could undertake to improve quality.

19. Please rank the following CRPWSMA projects for effectiveness as they relate to enhancing quality.

A rank of 1= does not enhance quality and a rank of 5= significantly enhances quality.

	PWS Ice Barge
	PWS Quality Guidelines
	PWS Quality Harvester Awards
	PWS Quality Meetings
	Other

20. How would you describe the 2012 Eshamy/Coghill seasons? Is there anything about the run, the markets, or other factors that really stood out for you?

4. Thank You!

Thank you for completing the survey. A copy of the survey results will be available from CRPWSMA in early 2013. CRPWSMA will email a copy of the results to you using the contact information you provided with the survey.

All individual data will remain in confidence with Northern Economics.