

# 2010 Bristol Bay Processor Survey

*Prepared for*  
Bristol Bay Regional Seafood  
Development Association  
February 2011



**Northern**  
**Economics**

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## **Bristol Bay Regional Seafood Development Association**

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*Prepared by*



**Northern  
Economics**

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## Abbreviations

ADF&G	Alaska Department of Fish and Game
BB-RSDA	Bristol Bay Regional Seafood Development Association
H&G	Head and Gut
Mlb	Million pounds
NEI	Northern Economics, Inc.
RSW	Refrigerated Sea Water

# 1 Introduction

The Bristol Bay Regional Seafood Development Association (BB-RSDA) contracted with Northern Economics, Inc. to conduct a survey of processors who operated in the 2010 Bristol Bay salmon fishery. This report summarizes the results of the study.

The 2010 results signify marked improvements in chilling, though growth in chilling statistics is moderate when compared to last year. This year's survey data showed a 5.7 percent increase in the volume of chilled raw product from the drift net fleet despite a drop in the total product purchased from the fleet that was greater than the drop in the Bristol Bay fishery. That is to say, total purchases from the fishery dropped by 11.5 million pounds (Mlb) and purchases from the drift net fleet dropped by 15.7 Mlb, but chilled purchases from the fleet rose by 3.4 Mlb. This increase is especially significant given this year's difficulties with access to ice on the Wood River. Reasons for the success in chilling may be attributable in large part to increases in the amount of ice available from processors. Processors reported that 155 tons of ice was available to permit holders daily. This is up 66 tons from last year's reported 89, and represents 23 percent of total ice production.

As with 2008 and 2009, the survey instrument consisted of a series of questions about processor operations in Bristol Bay. The 2010 survey captured raw product data, fleet information, current and expected ice production volumes, and respondents' opinions of trends and priorities within the fishery. The operational questions focus on processors' purchase of chilled product and the distribution of their production between the four major product forms (i.e., canned, H&G frozen, H&G fresh, and fillet).<sup>1</sup> All of the processors that we contacted responded to the survey. These processors reported processing almost 166 Mlb of raw (round weight) product in 2010.

The Alaska Department of Fish and Game (ADF&G) estimates the Bristol Bay commercial salmon harvest at 169 Mlb for 2010 (ADF&G 2010a). The total raw product purchases recorded by the survey are over 98 percent of the harvest, and are above the 92 percent coverage achieved in 2009 and the 94 percent achieved in 2008. Though fewer fish were harvested than last year, the total ex-vessel value of the catch was greater than in 2009 (ADF&G 2010c). Below are some of the notable changes in the Bristol Bay fishery from 2009 to 2010:

- The total volume of fish purchased by processors dropped by 6 percent, from 177 to 166 Mlb. Total purchases from the drift fleet dropped by 10 percent, or 15.7 Mlb.
- Despite this overall reduction in raw product purchases, chilled product purchases increased by 3.8 Mlb, accounting for 5 percent more of the total purchases in 2010. Processor purchases of chilled product from the drift fleet accounted for 90 percent, or 3.4 Mlb, of the increased total chilled product purchases.
- Almost three-quarters of the drift net chilled product is chilled by permit holders using RSW systems. The portion of product chilled by slush systems changed from 38.7 percent in 2009 to 36.9 percent relative to RSW. In other words, less drift product was chilled using slush ice relative to RSW in 2010.
- The amount of product processed outside the bay continues to decline, down from 16.8 percent in 2008, to 7.2 percent in 2009, to 2.1 percent in 2010.
- Over half of the 2010 raw product volume went into the H&G frozen product form and roughly one-third went into canned product. Most of what remained was sold as frozen fillets.

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<sup>1</sup> The full survey instrument is contained in an appendix to this report.

- The volume of raw product used for canning fell significantly, from 71.9 Mlb in 2009 (41 percent of total raw product purchased) to 55 Mlb in 2010 (33 percent).
- Total ice production capacity of processors and ice barges in Bristol Bay was 778 tons per day. The amount of ice available to permit holders per day was 253 tons; 155 tons of which came from processors and 98 tons of which came from ice barges. The study notes the capacity and usage are not the same.

The following sections discuss the results of the survey by topic area and provide a comparison to the 2008 and 2009 survey results. The last section provides additional insights and author conclusions.

## 2 Raw Product Purchases and Chilling

The volume of raw product purchased by Bristol Bay processors declined slightly in 2010, down six percent from the previous year. However, purchases of chilled raw product increased by nearly 6 percent to 67.2 Mlb, while purchases of unchilled product fell 13 percent to 98.7 Mlb. Raw chilled product is now 41 percent of total product purchases. The total amount of annual raw product purchases has increased by nearly 50 percent in the three years that BB-RSDA has funded this study while unchilled raw product purchases continue to fall.

Table 1 shows the continued convergence of chilled product and unchilled product volumes. In 2010 chilled product accounted for 41 percent of total volume, up 5 percent from 2009. Conversely, unchilled product dropped from 64 percent of total purchases to 59 percent.

**Table 1. Total Raw Product (Drift and Set) Purchases, 2008-2010**

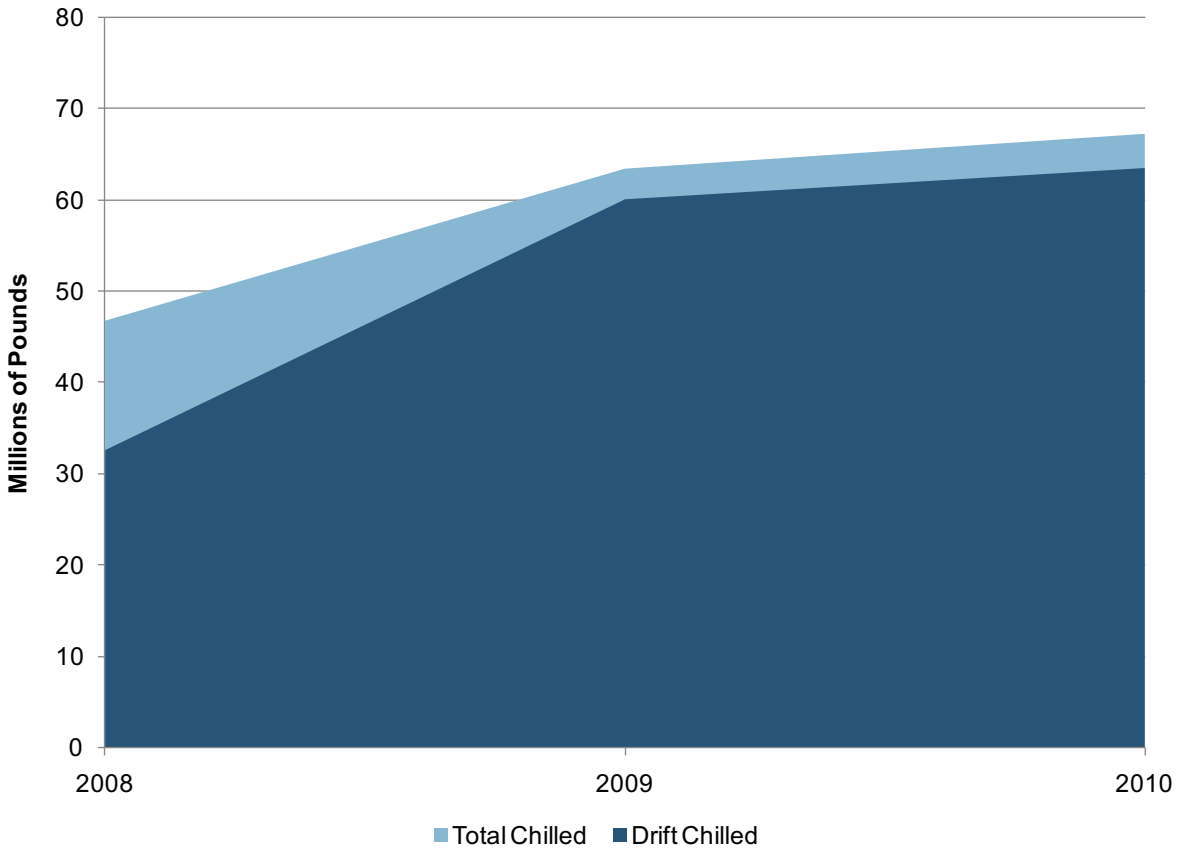
Product	2008		2009		2010		Percent Change (2009-2010)	
	Round Pounds	Percent of Total	Round Pounds	Percent of Total	Round Pounds	Percent of Total	Round Pounds	Percent of Total
Chilled	46.7	29%	63.4	36%	67.2	41%	6%	14%
Unchilled	116.7	71%	113.9	64%	98.7	59%	-13%	-8%
<b>Total</b>	<b>163.5</b>	<b>100%</b>	<b>177.3</b>	<b>100%</b>	<b>165.9</b>	<b>100%</b>	<b>-6%</b>	<b>N/A</b>

Source: Northern Economics, Inc. 2010

Note: column totals do not sum from rows due to rounding

Drift net chilled purchases were responsible for 90 percent of the total chilled product purchase increase noted in Table 1. Figure 1 emphasizes the large role that drift net chilled purchases play relative to total raw product chilled purchases. Processor purchases of chilled raw product from the drift net fleet have nearly doubled since the BB-RSDA began this study in 2008.

**Figure 1. Chilled Product Purchases in Bristol Bay (Mlb), 2010**



Source: Northern Economics, Inc. 2010

Table 2 summarizes the raw product purchases from the drift net fleet. Total purchases from the drift net fleet dropped in both relative and absolute terms between 2009 and 2010. The total volume of purchases dropped by 10 percent, or 15.7 Mlb, accounting for 82 percent of total product purchases (down 4 percent from the previous year). Despite this overall reduction, chilled purchases from the drift net fleet rose by 3.4 Mlb, accounting for 94 percent of the total chilled product purchases.

**Table 2. Drift Fleet Raw Product Purchases, 2008-2010**

Product	2008		2009		2010		Percent Change (2009-2010)	
	Round Pounds	Percent of Total	Round Pounds	Percent of Total	Round Pounds	Percent of Total	Round Pounds	Percent of Total
Chilled	32.5	24%	60.0	40%	63.4	47%	6%	18%
Unchilled	102.2	76%	91.7	60%	72.6	53%	-21%	-12%
<b>Total</b>	<b>134.7</b>	<b>100%</b>	<b>151.7</b>	<b>100%</b>	<b>136.0</b>	<b>100%</b>	<b>-10%</b>	<b>N/A</b>

Source: Northern Economics, Inc. 2010

### 3 Finished Product Forms

The fishery in 2010 showed marked differences from 2009 in terms of finished product forms. The volume of salmon used for canned product dropped by 23 percent, from 72 to 55 Mlb, and accounted for only one-third of total round pounds. The trend continues to reinforce our perception that chilled product is a gateway to product forms with higher wholesale values. It would appear that market changes and chilling are combining in a manner to promote the higher value product forms and drive down the percentage of canned product. As the data in Table 3 demonstrate, over half of the 2010 raw product volume was used for H&G Frozen form. As with 2009, H&G Frozen was the largest product category in both amount of raw product consumed and finished product produced. The amount of raw product consumed by frozen fillets saw a significant increase of 3.2 million pounds, or 20 percent from 2009.

The largest percentage changes in raw product consumed took place in the H&G Fresh and Other product categories; however, this signifies only a small absolute difference. The amount of H&G Fresh grew by 26 percent, which represented only 0.3 Mlb in absolute terms. Product used for the Other category dropped by 83 percent or 0.3 Mlb, also a small portion when compared to the volume of raw product used for H&G Frozen, Canned, and Fillet forms.

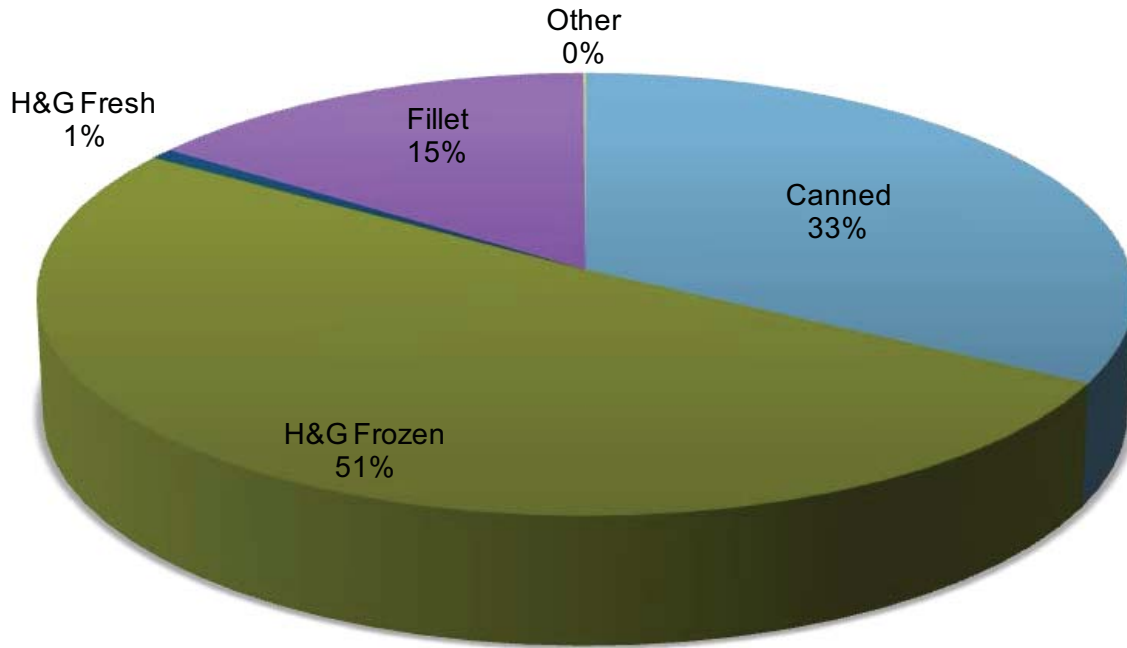
**Table 3. Raw Product Consumed by Estimated First Wholesale Product Form, 2008-2010**

Product Form	2008		2009		2010		Percent Change (2009-2010)	
	Round Pounds	Percent of Total	Round Pounds	Percent of Total	Round Pounds	Percent of Total	Round Pounds	Percent of Total
Canned	74.6	46%	71.9	41%	55.0	33%	-23%	-18%
H&G Frozen	71.2	44%	83.1	47%	84.5	51%	2%	9%
H&G Fresh	0.8	0%	1.0	1%	1.3	1%	26%	35%
Fillet	16.2	10%	20.7	12%	24.9	15%	20%	29%
Other	0.7	0%	0.6	0%	0.1	0%	-83%	-82%
<b>Total</b>	<b>163.5</b>	<b>100%</b>	<b>177.3</b>	<b>100%</b>	<b>165.9</b>	<b>100%</b>	<b>-6%</b>	<b>N/A</b>

Source: Northern Economics, Inc. 2010

Note: column totals do not sum from rows due to rounding

**Figure 2. Raw Product Forms of Product Processed in Bristol Bay, 2010**



Source: Northern Economics, Inc. 2010

Final product form shifts, as shown in Table 4, are similar to those for raw product forms. Both H&G Frozen and Fillets increased as a total portion of the 2010 first wholesale product form weight. Canned product saw the only major decrease, declining from an estimated 39 percent of the production by weight to 32 percent.

**Table 4. Estimated First Wholesale Product Form, 2008-2010**

Product Form	2008		2009		2010		Percent Change (2009-2010)	
	Product Pounds	Percent of Total	Product Pounds	Percent of Total	Product Pounds	Percent of Total	Product Pounds	Percent of Total
Canned	50.0	44%	48.2	39%	36.9	32%	-23%	-18%
H&G Frozen	52.7	47%	61.5	50%	62.5	55%	2%	9%
H&G Fresh	0.6	1%	0.8	1%	1.0	1%	27%	36%
Fillet	9.2	8%	11.8	10%	14.2	12%	20%	29%
Other	0.7	1%	0.6	0%	0.1	0%	-83%	-82%
<b>Total</b>	<b>113.2</b>	<b>100%</b>	<b>122.8</b>	<b>100%</b>	<b>114.7</b>	<b>100%</b>	<b>-7%</b>	<b>N/A</b>

Source: Northern Economics, Inc. 2010

Note: column totals do not sum from rows due to rounding

The reduced volume of product canned in 2010 is in part attributable to the timing of the salmon run. This year's run was evenly paced relative to most years, and fed processors a steadier volume of fish. Processors were, in turn, were better able to manage production to avoid canning.

In 2009 our survey showed a continuing trend away from long-haul shipping by a number of processors. The volume of round pounds canned outside the bay dropped from 17 percent in 2008

to 7 percent in 2009. This year the trend continued as processors reported canning only two percent of raw product purchases outside of the bay. Relatively “orderly” runs over the past two years have allowed processors to process more fish within Bristol Bay. When runs are “orderly” (i.e., relatively equal production from day-to-day) then processors can focus on value-added products and maximizing the use of their in-Bay resources. We expect that runs where many of the fish are caught during “peak” openers would result in more production outside the Bay.

**Table 5. Canning Location, 2008-2010**

Product Form	Round Pounds			Percent of Total Production		
	2008	2009	2010	2008	2009	2010
Reported Canned in the Bay	47.0	59.2	51.6	29%	33%	31%
Assumed Canned Outside the Bay	27.5	12.7	3.4	17%	7%	2%
<b>Total</b>	<b>74.6</b>	<b>71.9</b>	<b>55.0</b>	<b>46%</b>	<b>41%</b>	<b>33%</b>

Source: Northern Economics, Inc. 2010

Note: column totals do not sum from rows due to rounding

## 4 Product Chilled Prior to Delivery

As in previous years, the 2010 survey tried to capture the differences in use and effectiveness of RSW and slush ice systems within the drift net fleet. Processors were asked what percentage of chilled raw product from the drift net fleet were chilled by each of these methods, and also how likely a delivery was to be properly chilled before arriving a first point of delivery. Table 6 shows that 73 percent of the chilled raw product processors purchased from the drift net fleet came from RSW systems, while 27 percent of the product came from slush chilled systems.

The growth in the volume of fish chilled using an RSW system increased by 4.3 Mlb between 2009 and 2010, which is indicative of continued investment in this type of chilling system. Meanwhile, the volume of slush-chilled fish grew by less than 1 Mlb and at first glance suggests a leveling-off of slush ice users. Further analysis reveals that regulatory changes within the fishery may have caused the low level of growth. This year, fishery regulations pushed much of the Nushagak fleet onto the Wood River for a period of time, reducing their access to ice. In addition, the Egegik harvest volumes were 45 percent below forecast and likely inhibited the growth of the total volume of chilled fish (ADF&G 2010b). As discussed further in Section 6, a large increase in processor ice production available to permit holders likely sustained the amount of slush-chilled product reported in 2010.

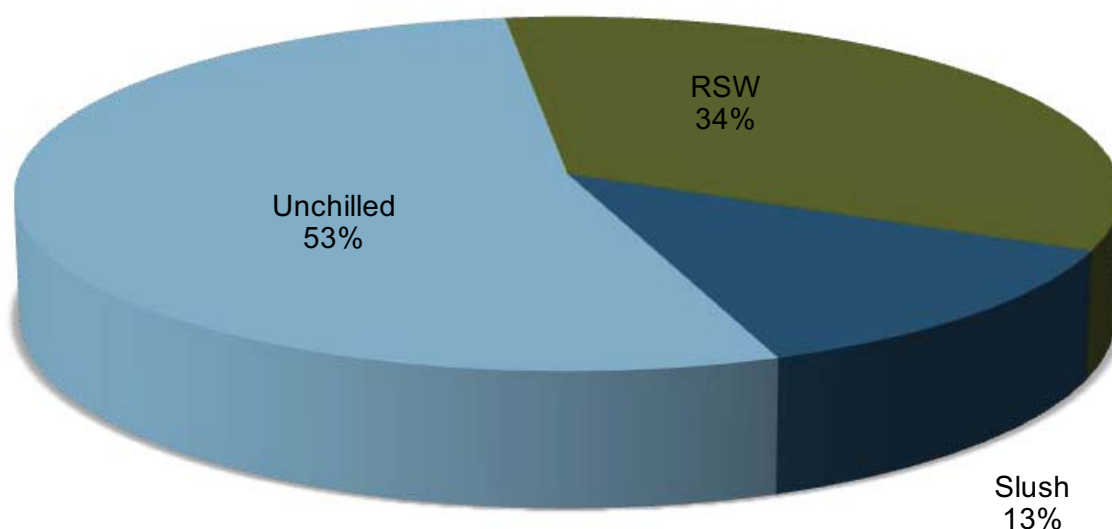
**Table 6. Drift Fleet Chilling Methods 2008-2010**

Chilling Method	2008		2009		2010		Percent Change (2009-2010)	
	Round Pounds	Percent of Total	Round Pounds	Percent of Total	Round Pounds	Percent of Total	Round Pounds	Percent of Total
RSW Chilled	26.5	81%	41.7	70%	46.0	73%	10	5%
Slush Chilled	6.1	19%	16.1	27%	17.0	27%	5	0%
Other	N/A	N/A	2.2	4%	-	0%	N/A	N/A
<b>Total</b>	<b>32.5</b>	<b>100%</b>	<b>60.0</b>	<b>100%</b>	<b>63.0</b>	<b>100%</b>	<b>5</b>	<b>N/A</b>

Source: Northern Economics, Inc. 2010

Note: Not all processors could estimate the division of RSW vs. slush chilled product; 2010 round pounds by chilling method do not equal total chilled round pounds. Column totals do not sum from rows due to rounding

As noted in Table 6, not all processors were able to estimate the portion of chilled product which came from each system type. The RSW and slush ice system estimates noted in Table 6, Table 7 and Figure 3 represent 99 percent of the chilled product from the drift net fleet reported for 2010.

**Figure 3. Chilling Methods in the Drift Fleet (2010)**

Source: Northern Economics, Inc. 2010

Over the last three years, the percent of unchilled product purchased from the drift net fleet dropped by more than one-fifth (23 percent). Table 7 shows that over this time there was a corresponding increase in the percent of RSW and slush ice product purchased. The percentage of RSW-chilled fish increased by 14 percent, and the percentage of ice-chilled fish increased by 7 percent between 2008 and 2010. The study notes that, as one would expect, the distribution of deliveries by chilling method is roughly equivalent to the distribution of BB-RSDA's fund from permit holders by type.

**Table 7. Drift Fleet Chilling Methods as a Percentage of Total Drift Chilled Product, 2008-2010**

Year	Total Round Pounds	RSW		Ice Chilled		Dry (Unchilled)	
		Round Pounds	Percent of Total	Round Pounds	Percent of Total	Round Pounds	Percent of Total
2010	136.0	46.0	34%	17.0	12%	72.6	53%
2009	151.7	41.7	27%	16.1	11%	91.7	60%
2008	134.7	26.5	20%	6.1	5%	102.2	76%
<b>Total</b>	<b>422.5</b>	<b>114.2</b>	<b>27%</b>	<b>39.2</b>	<b>9%</b>	<b>266.5</b>	<b>63%</b>

Source: Northern Economics, Inc. 2010

Note: Round pounds may not equal total pounds due to the exclusion of 'other' chilling methods.

Not all processors could estimate the division of RSW vs. slush chilled product; 2010 round pounds by chilling method do not equal total chilled round pounds.

The survey asked respondents what percentage of the total raw product purchased from the drift net fleet was chilled across the season, and within the first third, peak, and last third of the season. Using the results from this question we derived an index, the results of which are shown in Table 8.

The survey data indicate that in 2010, a pound of raw product was about nine percent more likely to be chilled in the middle of the season than during the first third of the season. In contrast, in years past, fish was less likely to be chilled during the traditional peak of the run than in the early part of the run. These figures likely signify the ability of harvesters to keep pace (and even expand icing) with the

more moderately timed run in 2010. This result is somewhat surprising given the fact that the drift net fleet was pulled into the Wood River for part of the run and could not be supplied with chilled ice. We suspect that RSW systems within the fleet may have supported chilling during this period.

**Table 8. Chilling Through the Season (Indexed)**

<b>Year</b>	<b>First Third of the Season (Before July 1)</b>	<b>Peak of the Season (July 1-July 15)</b>	<b>Last Third of the Season (After July 15)</b>
2010	100	109	103
2009	100	81	77
2008	100	87	100

Source: Northern Economics, Inc. 2010

## 5 Processor Drift Fleets

For the third year in a row, survey results showed an increase in the number of vessels reported in processor fleets. A processor considered a boat as part of its fleet if it was contractually obligated to deliver to them, or if they felt that it made more than 50 percent of their deliveries to the processor. The largest fleet reported in 2010 was 34 percent larger than the largest fleet reported in 2009. Table 9 shows that both the average and median processor fleet numbers increased; we surmise that this increase may be the result of latent permit holders returning to the fishery as ex-vessel value per pound has increased.

**Table 9. Number of Vessels in the Processor Fleet, 2008-2010**

Year	Total	Average	Median
2010	1,343	122	115
2009	1,309	119	100
2008	1,162	97	98

Source: Northern Economics, Inc. 2010

The portion of the drift fleet that chilled its deliveries at least half of the time dropped by more than four percent between 2009 and 2010. This was unexpected considering that the portion of chilled product from the drift net fleet was seven percent larger than last year (up from 40 to 47 percent of total product purchased from the drift net fleet). The results in Table 10 could be explained by a select number of vessels within the fleet accounting for a disproportionately higher percentage of chilled deliveries.

**Table 10. Consistency of Chilling, 2008-2010**

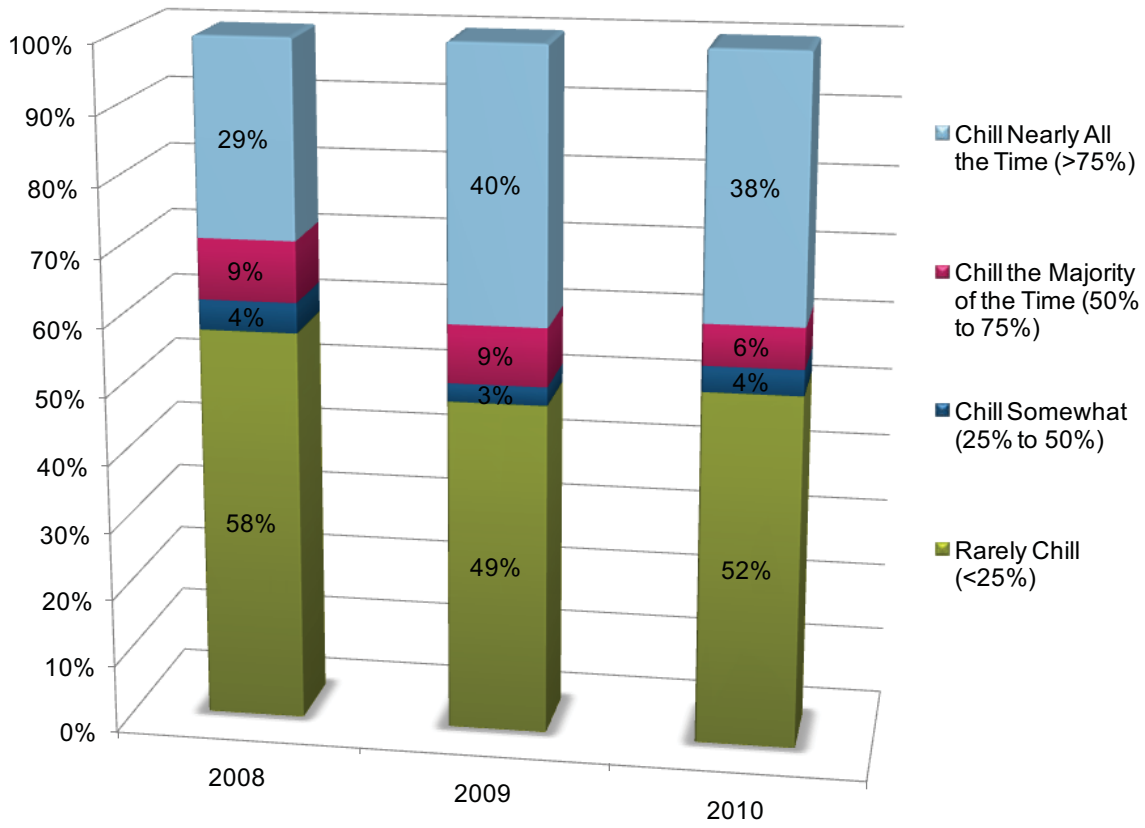
Year	Drift Vessels	Percent of Deliveries that Were Chilled				
		>75% of the Time	50 to 75% of the Time	25 to 50% of the Time	<25% of the Time	None of the Time
2010	Percent	38.3%	6.0%	3.8%	6.4%	45.5%
	Number of Vessels	514	81	51	87	611
2009	Percent	39.9%	8.5%	2.7%	5.7%	43.2%
	Number of Vessels	522	112	35	74	565
2008	Percent	28.8%	8.9%	4.4%	57.8%	N/A
	Number of Vessels	335	104	51	672	N/A

Source: Northern Economics, Inc. 2010

Note: Totals do not match the table above because of rounding.

Figure 4 shows the distribution of how consistently groups of vessels chilled their raw product in 2008, 2009 and 2010. As noted above, the group which chills more than half of the time shrank slightly, and there was a corresponding increase in the group which chills less than half of the time.

Figure 4. Consistency of Chilling, 2008-2010



Source: Northern Economics, Inc. 2010

## 6 Processor Ice-Making Capability

The survey data indicate that total daily ice production from respondent processors decreased in 2010, from 750 tons in 2009 to 680 tons per day, but that the amount of ice available to permit holders increased. Permit holders had 155 tons available to them, which is 23 percent of the total ice produced. This percentage is almost twice that of last year and indicates an absolute increase of 66 tons per day.

**Table 11. Ice Production in Tons per Day, 2008-2010**

	2008	2009	2010
Total Ice Production Capacity	760	750	680
Available to permit holders from processors	85	89	155
Percent available to permit holders from processors	11%	12%	23%
Barge Ice		98	98
Total ice available to permit holders		187	253

Source: Northern Economics, Inc. 2010.

Note: 2008 numbers do not agree with the 2009 numbers because these results are 'unadjusted.' Figures have not been adjusted to reflect the absence or addition of processors in the survey.

From 2009 to 2010, six of the processors reported an ice production increase while three reported a decrease, and one remained the same.

Going forward, the majority (73 percent) of respondents expect to see only marginally more ice available from processors. 18 percent expect no change in the amount of ice available, and only 9 percent expect a substantial increase.

## 7 Quality and Chilling

As with 2009, BB-RSDA and Northern Economics asked respondents about the relationship between chilling and product quality. The questions were designed to help determine the value of improved handling practices. The survey asked respondents to tell us what the proportional value of fillets and frozen H&G product made from #2 grade fish are worth compared the same products made from #1 grade fish. In other words, if product from a #1 grade fish receives a score of 100 from the wholesale market, what grade does product from a #2 fish receive?

As with last year, the survey data confirmed that products from #2 grade fish received a lower value on the wholesale market. However, the ranges of discounted values reported shifted in 2010. Respondents noted that frozen fillets are worth between 2 and 65 percent less, or 25 percent less as an average. Last year's results showed that fillets were worth 48 percent less, on average.

The 2010 discount range for H&G was between 3 and 80 percent, a much larger range than reported in 2009 (5 to 30 percent). This year average percentage discounts of both fillets and H&G were reported at 29 percent. This is a sharp difference from the 2009 results, which showed an average discount of 48 percent for fillets and 16 percent for H&G. We suspect that increased market conditions could drive these year-to-year variations. For example, increased demand for frozen fillets could lower the distinction between 1's and 2's if certain buyers were less "picky" this year than they were in years past.

**Table 12. Average Difference from the #1 Wholesale Price, 2010**

Product Form	Low Discount	High Discount	Average	Median
Frozen Fillet	-2	-65	-29	-25
Frozen H&G	-3	-80	-29	-22

Source: Northern Economics, Inc. 2010

Immediately following these questions, the survey asked whether a chilled fish is more likely to be a #1 fish than a #2 fish. Six of the eleven respondents stated that a chilled fish is "much more likely" to be a #1 than an unchilled fish. The remaining five respondents stated that a chilled fish is "somewhat more likely" to be a #1 than an unchilled fish.

## 8 Open Ended Responses

In addition to collecting purchasing and processing data, questions 5.1, 5.2, and 5.3 of the 2010 survey captured processor priorities and opinions regarding the fishery. These questions asked respondents to list important projects, to prioritize spending areas, and to rank a set of factors which may have contributed to the higher values for Bristol Bay salmon in 2010. Each is re-stated below (in italics), and processor responses are summarized in Table 14, Table 13, and Table 15<sup>2</sup>.

### **Question 5.1**

*BB-RSDA is authorized to spend money in four areas to improve the overall health and value of the Bristol Bay salmon fishery. These areas include: Infrastructure, Research, Quality, and Marketing. BB-RSDA is interested in which area you think it is most important for BB-RSDA to focus. Where can BB-RSDA make the biggest and most important contribution?*

As shown above, the survey asked processors to rate the importance of the four areas where BB-RSDA is authorized to spend money: infrastructure, research, quality, and marketing. The respondents rated improving quality as the most important area. On average, they rated that area 4 out of 5 on a 5-point scale and 91 percent of respondents rated the focus area as being at least “moderately important.” The second highest rating was given to infrastructure (3.5/82 percent) and then research (2.8/82 percent). The lowest rating when to marketing, which received an average rating of 2.7 and less than half of respondents (45 percent) rated the focus area as being at least “moderately important.”

**Table 13. Prioritization of Spending Areas**

Area of Improvement	Very High Importance	High Importance	Moderate Importance	Low Importance	Very Low Importance	Average Score on 1-5 Scale*	Percent at or above Moderate Importance
Infrastructure	27%	36%	18%	0%	18%	3.5	82%
Research	0%	9%	73%	9%	9%	2.8	82%
Quality	45%	27%	18%	0%	9%	4.0	91%
Marketing	9%	27%	9%	36%	18%	2.7	45%

\*1= Very Low Importance, 5=Very High Importance

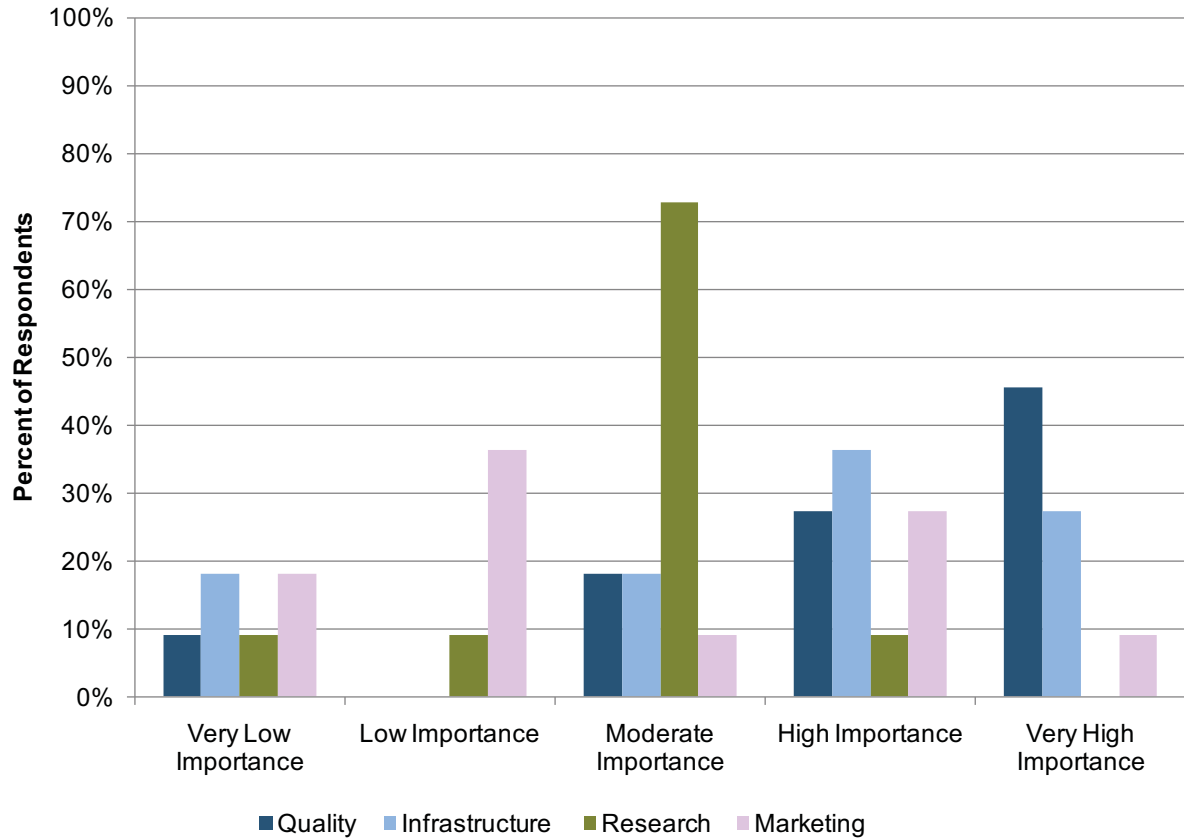
Source: Northern Economics, Inc. 2010

Note: column totals do not sum from rows due to rounding

<sup>2</sup> All of the responses in this section have been repeatedly randomized between the tables to prevent comments from being linked together.

Figure 5 illustrates each category by percentage of responses. While processors felt that some spending areas were more important than others, it is worth noting that all four areas were shown to have value. In other words, no one category was ranked as being of 'very low importance' by more than 18 percent of respondents.

**Figure 5. Prioritization of Spending Areas**



Source: Northern Economics, Inc. 2010

**Question 5.2**

*Please describe what you think is the single most important project that BB-RSDA could undertake in the coming year. If you were BB-RSDA, what project would you undertake?*

**Table 14. Important Projects**

Comment
The continued support of ice-making platforms.
Egegik smolt studies.
Further knowledge and understanding of the importance of quality and value of their harvest sold to processors. Providing more information and hands-on items for fishers.
Continuing quality research.
The BB-RSDA needs to allocate more funding to ice production for the local watershed resident drift fleet. A majority of the resident drift fleet do not have adequate vessels or financing to accommodate RSW systems. With this increase in available ice capacity the BB-RSDA should design this for easy "Direct" access for these drift vessels. From a logistic standpoint this should not be a shore-side ice production facility relying on the processor's tender fleet for disbursement.
More Ice Infrastructure.
Continue supporting quality improvements infrastructure. On both the fishing vessel and processing company level (more ice machines, subsidized RSW systems, etc). Also support anti-Pebble Mine campaign, particularly when it comes to BB fisherman education and outreach.
Figuring out how RSDA money can be applied to Bristol Bay Fleet for RSW systems.

Source: Northern Economics, Inc. 2010

Results from the first open-ended question are varied, but indicate that chilling is a priority for processors. Five of the eight responses to the 'important projects' suggest ice infrastructure and financing for RSW systems as BB-RSDA priorities. The remaining three responses are research related and specifically mention smolt studies and quality and value of harvest.

**Question 5.3**

The 2010 season continued a multi-year trend of higher values for Bristol Bay salmon. How much do you think the following events contributed to this year's increase in value for Bristol Bay salmon? Please rank each event below. If you choose to enter an event not listed by using the "other" selection option, please remember to rank the event's importance and then name that event by entering the name in the last line of the question.

**Table 15. Contribution to Higher Values for Bristol Bay Salmon in 2010**

Event	Dominant Factor	Major Factor	Moderate Factor	Minor Factor	Not a Factor	Average Score on 1-5 Scale*	Percent at or above Major Factor
Colder Ambient Water Temperature in Bristol Bay	0%	30%	10%	30%	30%	2.4	30%
Improved Harvester Handling Practices	9%	27%	36%	27%	0%	3.2	36%
Steadier Run Timing	20%	50%	10%	20%	0%	3.7	70%
Improvement in General Market Conditions	9%	73%	0%	18%	0%	3.7	82%
Information from Research Projects (e.g., Port Moller)	0%	11%	44%	11%	33%	2.3	55%

\*1= Not a Factor, 5=Dominant Factor

Source: Northern Economics, Inc. 2010

Note: column totals do not sum from rows due to rounding

As shown above, the study asked respondents to rate the reasons they felt Bristol Bay salmon had generated higher values in recent years. The most important reason cited by respondents is improvement in general market conditions. Respondents gave this reason an average rating of 3.7 out of 5, and 82 percent of respondents ranked it as at least a “major factor.” The second most highly ranked reason was “steadier run timing”. This factor also scored a 3.7 of 5, and 70 percent rated it at least a “major factor.” “Improved product handling” scored a 3.2/36 percent rating, while “colder ambient water temperature in Bristol Bay” and “information from research projects” came in a distant third tier of reasons at 2.4/30 and 2.3/55. Processors exhibited significant variability in how they rated the importance of “information from research projects.” These opinions may reflect that fact that information from such projects sometimes takes years to become important in production situations, while market conditions have a more immediate effect.

Question 5.3 also had an open-ended component that allowed respondents to list other factors which contributed to the higher values. Of the three respondents who offered a reason, all mentioned the farmed salmon industry and ranked it as a dominant or major factor, giving it a higher average score than any of the other factors listed (4.7). The first noted “Problems with Chilean farmed fish,” the second noted “Continuing crisis in the Chilean farmed salmon sector,” and the third made a more general comment: “Decline in farmed fish combined with decline in global supplies of sockeye salmon=increase in demand for BB sockeye.”

## 9 Conclusions and Recommendations

The study team noted several important items from this year's survey. For one, while the total volume of fish purchased by processors dropped by 6 percent, from 177 to 166 Mlb, and total purchases from the drift fleet dropped by 10 percent, or 15.7 Mlb, the total amount of chilled product purchased from the drift fleet increased by 3.4 Mlb. The study team believes that this result is quite significant given the collapse of the Egegik run (where one ice barge was stationed) and the fact that the fleet working the Nushagak run was pulled into the Wood River and cut off from slush ice deliveries. Continued investment by permit holders in individual RSW systems gave the fleet some flexibility in maintaining chilling practices through these events. After two years of strong gains, the portion of product chilled by slush systems fell slightly this year to 36.9 percent of all chilled product. We believe that it will be interesting to see if chilled product as a portion of total chilled product continues to see gains next year, or if continued investment in RSW systems by individual permit holders will forestall that increase. Either event would likely be positive for the fishery if it results in an overall increase in the portion of drift fleet product that is chilled prior to delivery.

The study team also noted this year that the amount of product processed outside the bay continues to decline, down from 16.8 percent in 2008, to 7.2 percent in 2009, to 2.1 percent in 2010 and that the volume of raw product used for canning fell significantly, from 71.9 Mlb in 2009 (41 percent of total raw product purchased) to 55 Mlb in 2010 (33 percent). We believe that this change represents a change in processing needs associated with market conditions and the fact that the last two runs in Bristol Bay have been exceptionally "orderly" (i.e., lacking the volume peak typical of some Bristol Bay runs). It will be interesting to see how this recent trend would change during a "disorderly" run.

We note continued increases in the amount of ice available to permit holders. Total ice production capacity of processors and ice barges in Bristol Bay this year was 778 tons per day. The amount of ice available to permit holders was 253 tons per day, 155 tons of which came from processors and 98 tons of which came from ice barges. The study notes the capacity and usage are not the same and that demand by permit holders appears to be less than maximum capacity.

Lastly, we note the open-ended feedback provided by processors. It is clear that responding processors feel that BB-RSDA's top focus should be quality followed by second-tier (but still important) focus areas of infrastructure and research. Marketing came in a distant fourth as a priority area and just under half of the responding processors considered the area "moderately important." Processors also provided feedback on why they felt the Bristol Bay fishery had shown higher value in the last several years. The top two factors, "improved market conditions" and "steadier run timing," are factors that are largely outside the control of permit holders. "Improved product handling" came in a close, but distinct, third place. We note that several processors took the time to very specifically add comments about how lower Chilean farmed production had positively affected the market. We would expect that at some point Chilean farmed production will recover from recent issues, and that permit-holders may consider bracing for softer prices when that increase occurs. Improved quality may help lessen the blow of these supply increases, but some processors are clearly signaling that improved quality still takes a back seat to world market conditions.

## 10 References

- Alaska Department of Fish and Game (ADF&G). *2010 Alaska Commercial Salmon Harvests and Exvessel Values*. November 5, 2010a. Available at [www.cf.adfg.state.ak.us](http://www.cf.adfg.state.ak.us).
- Alaska Department of Fish and Game (ADF&G). *2010 Bristol Bay Salmon Season Summary*. News Release. September 22, 2010b. Available at [www.adfg.state.ak.us](http://www.adfg.state.ak.us).
- Alaska Department of Fish and Game (ADF&G). *ADF&G Releases 2010 Salmon Season Summary*. Press Release No. 10-28, November 8, 2010c. Available at [www.adfg.state.ak.us](http://www.adfg.state.ak.us).

## **Appendix: 2010 Bristol Bay Processors Survey Instrument**

# 1. Introduction

Welcome to the 2010 Bristol Bay Salmon Fishery Processing Survey! We're glad to be conducting this survey again after successful 2008 and 2009 surveys. The 2010 survey builds on the data in prior surveys and will allow you to see aggregate changes in the fishery that occurred between 2008, 2009, and 2010.

As with the prior surveys:

The purpose of the survey is to collect information on the chilling of fish by fishermen and the distribution of finished product between four dominant product forms (excluding roe).

All of the data reported by individual respondents will be held in confidence by Northern Economics and will only be reported in aggregate. At no time will anyone other than Northern Economics staff have access to individual survey responses.

The aggregated survey results will be submitted to the survey sponsor, the Bristol Bay Regional Seafood Development Association (BBRSDA). BBRSDA will also 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 Marcus Hartley at 907-274-5600.

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 a processor's purchase of raw product (round weight fish) in 2010. Please ensure that all answers are for the 2010 season.

Please note that some questions refer to all of your operations in 2010 while other questions refer specifically to the DRIFT NET fleet.

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.

### 1. In 2010 how many pounds of raw product (round weight fish) did your company purchase from the Bristol Bay salmon fishery?

2010 Raw Product Weight

### 2. In 2010, how many pounds of previously chilled raw product (using ice or refrigerated sea water (RSW)) did your company purchase in the Bristol Bay salmon fishery?

2010 Chilled Raw Product Weight

### 3. What percentage of each of the following categories came from the DRIFT NET fleet in 2010?

**For example, if the DRIFT NET fleet accounted for 75% of your purchases you would enter 75 below. The survey form does not accept % symbols or decimals.**

Portion of Total Raw Product from the Drift Net Fleet

Portion of Total Chilled Raw Product from the Drift Net Fleet

### 4. What percentage of your 2010 purchases in the Bristol Bay salmon fishery was shipped long-haul for processing at a plant outside of Bristol Bay?

Percentage Processed Outside Bristol Bay

### 5. Of the raw product (round weight fish) that your company purchased in 2010, and processed INSIDE Bristol Bay, please estimate the percent that your company used for each of the following product forms. The total should equal 100. ENTER ONLY NUMBERS. DO NOT ENTER PERCENT SYMBOLS (%).

Canned Product

H&G Frozen

H&G Fresh

Fillet

Other

**6. 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 DRIFT NET FLEET BOATS in 2010 from the Bristol Bay salmon fishery was chilled prior to delivery?**

Across the Season	<input type="text"/>
First Third of the Season (Before July 1)	<input type="text"/>
Peak of the Season (July 1-July 15)	<input type="text"/>
Last Third of the Season (After July 15)	<input type="text"/>

**7. What percentage of the chilled raw product your company purchased from drift net fleet boats in 2010 from each of the following categories? The total of your answer should be 100.**

RSW	<input type="text"/>
Slush Ice	<input type="text"/>
Other	<input type="text"/>

**8. BBRSDA is interested in learning 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 us 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
Frozen Fillet	<input type="text"/>
Frozen H&G	<input type="text"/>

**9. How much more likely is a chilled fish to be a #1 than an unchilled fish?**

- Much More Likely
- Somewhat More Likely
- Not Much Change in Likelihood
- Less Likely

**10. Over the past two years the survey asked several questions about whether RSW or slush ice systems result in better results. Our impression from the past survey results is that both systems can provide high-quality chilled product, but that slush ice systems have a slight edge in producing high quality product and that RSW systems are more susceptible to user error.**

**We would like to know, based on your experience in 2010, how likely a delivery was to be properly chilled before arriving at first point of delivery (i.e., permit holder to plant or tender). For each type of permit holder below please tell us what percentage of deliveries was chilled properly before the delivery was made by the permit holder.**

Percent of Deliveries Chilled Properly

Permit Holders Using Slush Ice	<input type="text"/>
Permit Holders Using RSW	<input type="text"/>
Permit Holders Not Using RSW or Slush Ice	<input type="text"/>

### 3. Your Fleet

This page asks questions about drift net boats that you consider to be part of "your fleet."

**1. In 2010, how many drift net boats did you consider to be part of "your fleet"? A boat would be counted as part of your fleet if they were contractually obligated to deliver to your company or if you felt they made more than 50% of their deliveries to your company in 2010.**

Number of Drift Fleet Vessels

**2. Please estimate the percentage of the drift net boats in your fleet that fits into the following categories. Please make sure your answers sum to 100.**

75% to 100% of their 2010 deliveries were chilled

50% to 75% of their 2010 deliveries were chilled

25% to 50% of their 2010 deliveries were chilled

1% to 25% of their 2010 deliveries were chilled

None of their 2010 deliveries were chilled

## 4. Processor Ice Production

This section of the survey asks about chilling in the bay including your company's production of ice in 2010 and its availability to your fleet.

### 1. In 2010, what was your company's total daily ice making capacity in Bristol Bay in tons?

Daily Ice Production Capacity (tons)

### 2. What percentage of your 2010 daily ice making capacity located in Bristol Bay is available for use by your drift boat fleet?

Portion Available to Your Drift Boat Fleet

### 3. Which statement do you think best describes how the amount of ice available to permit holders from ALL processors in aggregate is likely to change in the next five years? Please check one box.

- Substantially More Ice Available from Processors
- Marginally More Ice Available from Processors
- No Change in the Amount of Ice Available from Processors
- Marginally Less Ice Available from Processors
- Substantially Less Ice Available from Processors

## 5. Processor Input

BBRSDA believes that increased communication between processors and permit holders will lead to cooperative opportunities that benefit both groups. The distribution of our survey results are an example of this concept in action. BBRSDA is interested in knowing if the processing industry believes there are certain actions BBRSDA can take or promote that will benefit both groups. We're interested in knowing what you would like our role to be in the fishery.

1.

**BBRSDA is authorized to spend money in four areas to improve the overall health and value of the Bristol Bay salmon fishery. These areas include: Infrastructure, Research, Quality, and Marketing. BBRSDA is interested in which area you think it is most important for BBRSDA to focus. Where can BBRSDA make the biggest and most important contribution?**

	Level of Importance
Infrastructure	<input type="text"/>
Research	<input type="text"/>
Quality	<input type="text"/>
Marketing	<input type="text"/>

**2. Please describe what you think is the single most important project that BBRSDA could undertake in the coming year? If you were BBRSDA, what project would you undertake?**

**3. The 2010 season continued a multi-year trend of higher values for Bristol Bay salmon. How much do you think the following events contibuted to this year's increase in value for Bristol Bay salmon?**

**Please rank each event below. If you choose to enter an event not listed by using the "other" selection option, please remember to rank the event's impotence and then name that event by entering the name in the last line of the question.**

	Not at a Factor	Minor Factor	Moderate Factor	Major Factor	Dominant Factor
Colder Ambient Water Temperature in Bristol Bay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved Harvester Handling Practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Steadier Run Timing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improvement in General Market Conditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information from Research Projects (e.g.Port Moller)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please Specifiy Below After Ranking)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If You Choose "Other" Above Please Specify Below

## 6. Thank You!

Thank you for completing the survey. A copy of the survey results will be available from BBRSDA in early 2011. BBRSDA 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.