The Fisherman's Share of the Wholesale Price

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Motivation . . .

- Fishermen and others sometimes argue that a decline in the fisherman's share of the wholesale price is an indicator that:
 - Ex-vessel prices are "unfair"
 - Markets are not competitive
- Ex-vessel price formulas are sometimes based on a share of the wholesale price

This presentation argues that ...

- 1. Changes in the fisherman's share of the wholesale price are <u>not</u> necessarily indicators of whether
 - Ex-vessel prices are "fair"
 - Markets are competitive
- 2. Ex-vessel prices formulas based on a share of the wholesale price may not work well when:
 - Wholesale prices change significantly
 - Fishing or processing costs change significantly

- 1. Changes in the fisherman's share of the wholesale price are <u>not</u> necessarily indicators of whether:
 - -- Ex-vessel prices are "fair"
 - -- Markets are competitive

Arguments based on the "fisherman's share of the wholesale price": Two Alaska examples . . .

In the 1990s, Bristol Bay salmon fishermen sued Bristol Bay processors and Japanese salmon importers over alleged price-fixing.

The plaintiffs' expert witness Jeffrey Leitzinger argued that the fall in the fishermen's share of the wholesale price was a measure of "damages" that the price-fixing had caused to fishermen.

Leitzinger argued that the fishermen's "share of the Japanese wholesale price" had declined after 1988.



Leitzinger calculated what the fishermen's price would have been from 1989-1995 if they had continued to receive the same share of the "Japanese wholesale price" as they did in 1986-88.



Leitzinger's estimate of damages was based entirely on the claim that fishermen should have received the same percentage of the "Japanese wholesale price" as they did during the period 1986-88.

1986 -1988 Benchmark Ex-Vessel Processor. Bristol Bay as a % of Importer, Average Wholesale Ex-Vessel Wholesale Wholesaler Price Margin Price Share Price (Dollars Per Round Lb.) (Percent) (1)-(2)(2)/(1)100% -(4) (1) (2)(3)(4)(5)\$2.40 \$1.42 \$0.98 59.2% 40.8% 1986 54.5% 45.5% 1987 2.57 1.40 1.17 1988 3.83 2.10 1.73 54.8% 45.2% \$2.93 \$1.64 \$1.29 56.2% 43.8% Average: 43.9% 56.1% \$2.85 \$1.25 \$1.60 1989 1990 2.47 1.09 1.38 44.1% 55.9% 1991 2.11 0.75 1.36 35.5% 64.5% 1.42 44.1% 55.9% 1992 2.54 1.12 1993 1.99 0.68 1.31 34.2% 65.8% 1994 2.79 0.99 1.80 35.5% 64.5% 1995 1.98 0.80 1.18 40.4% 59.6% \$2.39 \$0.95 \$1.44 39.7% 60.3% Average:

Summary of Damages

	UNDERPAYMENT 56.2% x Average Wholesale Price			
	But-for Ex-Vessel Price	Actual Ex-Vessel Price	Underpayment	
1989	\$1.60	\$1.25	\$0.35	
1990	1.39	1.09	0.30	
1991	1.19	0.75	0.44	
1992	1.43	1.12	0.31	
1993	1.12	0.68	0.44	
1994	1.57	0.99	0.58	
1995	1.11	0.80	0.31	
Average:	\$1.34	\$0.95	\$0.39	

Leitzinger claimed that fishermen received 56.2% of the wholesale price from 1986-88, but only 39.7% from 1989-1995.

Fall 2015

Sockeye Market Analysis



PREPARED BY:





A 2015 analysis of Bristol Bay sockeye salmon prices . . .

Harvest Year	Base BB Ex-Vessel Price	Final BB Ex-Vessel Price	Avg. First Wholesale Value/lb.	Base Ex-Vessel Price as Pct. of First Wholesale Price	Final Ex-Vessel Price as Pct. of First Wholesale Price	Harvester Share of Total First Wholesale Sales Revenue	
2006	\$0.55	\$0.66	\$2.25	24%	29%	46%	
2007	0.62	0.67	2.45	25%	27%	45%	
2008	0.68	0.75	2.95	23%	25%	42%	
2009	0.70	0.80	2.97	24%	27%	42%	
2010	0.95	1.07	3.37	28%	32%	46%	
2011	1.00	1.17	3.99	25%	29%	43%	
2012	1.00	1.18	4.01	25%	29%	45%	
2013	1.50	1.61	5.31	28%	30%	51%	
2014	1.20	1.34	4.06	30%	33%	73%	
2015	0.50	N/A	3.01	17%	N/A	N/A	

Table 1. Ex-Vessel versus First Wholesale Price and Revenue, Bristol Bay Sockeye, 2006-2015

Notes: First wholesale sales price/revenue refers to the value of Bristol Bay sockeye products sold between May of the harvest year and April of the following year, roughly approximating the annual wholesale sales cycle. First wholesale value for 2015 only reflects product sold between May 2015 and August 2015. Comparing ex-vessel price per round pound to first wholesale value per processed pound does not reflect the share of total first wholesale revenue retained by fishermen, gross revenue figures for both sectors have been similarly compared to estimate harvester share figures (see far right column). Source: ADF&G and ADOR (ASPR), compiled by McDowell Group.

(based on initial sales of 2015 production, see Table 1 on following page). The final percentage of first wholesale value paid to fishermen for the 2015 harvest season will change as bonus/adjustments and additional processor sales data are factored in next spring, but preliminary figures suggest the percentage will be well below levels seen in prior years.

Definitions . . .

Total wholesale value



round lbs



Sw = Fisherman's share of wholesale price = E / (E + M)



Sc = Fisherman's share of costs = Cf / (Cf + Cp)



 $S\pi$ = Fisherman's share of profits = $\Pi f / (\Pi f + \Pi p)$



Suppose a group of fishermen owned a processing operation, and paid themselves <u>all</u> the profits after the processing costs.

The "fisherman's share" of the wholesale price would change as the wholesale price changed.

The higher the wholesale price, the higher the fisherman's share —and vice versa.

	Medium wholesale price	High wholesale price	Low wholesale price
Wholesale price/lb	\$2.50	\$3.00	\$1.50
Processing cost/lb	\$1.00	\$1.00	\$1.00
Profit after processing cost/lb	\$1.50	\$2.00	\$0.50
Price fishermen would pay themselves	\$1.50	\$2.00	\$0.50
% of wholesale price fishermen would pay themselves	\$1.50 / <mark>\$2.50</mark> = 60%	\$2.00 / \$3.00 = 66.6%	\$.50 / <mark>\$1.50</mark> = 33.3%

A more rigorous analysis of the fisherman's share of the wholesale price needs to consider:

- Processing costs
- Fishing costs
- The allocation of profit (or loss) between processors and fishermen

Assume initially that

- Processing costs are fixed
- Fishing costs are fixed
- The fisherman's share of profits (S π) is fixed at between 0% and 100%

Implications of fisherman's share of profits

Fisherman's share of profits (Sπ)	Fishermen's market power relative to processors
0%	No market power
between 0% & 100%	Some market power
100%	Full market power

It can be shown (see appendix) that:

	IF	THEN as the wholesale price falls, the fisherman's share of the wholesale price (Sw) will
Sπ = Sc	The fisherman's share of total profits = the fisherman's share of total costs	stay the same
Sπ > Sc	The fisherman's share of total profits the fisherman's share of total costs	fall
Sπ < Sc	The fisherman's share of total profits < the fisherman's share of total costs	rise

Example A:

The fisherman's share of profits is the same as the fisherman's share of costs. When the wholesale price falls, the fisherman's share of the wholesale price stays the same.



Example B:

The fisherman's share of profits is 100% (more than the fisherman's share of costs). When the wholesale price falls, the fisherman's share of the wholesale price <u>falls</u>.









Example C:

The fisherman's share of profits is 0% (less than the fisherman's share of costs). When the wholesale price falls, the fisherman's share of the wholesale price <u>rises</u>.









Mathematically,

Processors have non-fish costs such as labor, packaging and tendering.

Fishermen have costs such as fuel, insurance and boat payments.

As the wholesale price falls, these fixed costs become a higher share of the wholesale price.

The total amount of money left over for profits becomes a lower share of the wholesale price.

The fishermen's share of the wholesale price can stay the same only if:

-- their share of total profits is less than their share of total costs or --their share of total profits rises. Looking at Bristol Bay salmon prices . . .

There is no single "wholesale price" for Bristol Bay salmon. Multiple products are made from Bristol Bay salmon, which sell for widely varying prices.



How the McDowell Report looked at Bristol Bay prices . . .





A longer term look at the fisherman's share of the wholesale price



A more useful comparison: actual prices. What processors are willing to pay fishermen depends on costs they pay in actual dollars, not percentages of the wholesale price.



Bristol Bay sockeye salmon wholesale and ex-vessel prices, 1984-2015



Historically, fishermen have received or absorbed about 89% of increases or decreases in the wholesale price and probably a similar share of any increase or decrease in total profits.



Because fishermen's share of total profits is almost certainly greater than their share of total costs, we should expect their share of the wholesale price to rise when the wholesale prices rises—and vice versa.



2. Ex-vessel prices formulas based on a share of the wholesale price may not work well when:

Wholesale prices change significantlyFishing or processing costs change significantly

The "crab rationalization" restructuring of Bering Sea crab fisheries implemented in the 2000's mandated a price arbitration formula "based on the historical distribution of first wholesale revenues between fishermen and processors." The arbitrator has had to engage in the tortuous task of developing a formula which maintains a "historical distribution of first wholesale revenues between fishermen and processors"—when that distribution historically varied widely from year to year.

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Fishery	Season	GHL/TAC ^a	First wholesale price ^b	COAR ex vessel price ^c	COAR ex vessel percentage of first wholesale price	Percentage from formula arbitrator's report
Bering Sea	1997	117.0	2.13	0.79	37.2%	37.1%
C. opilio	1998	225.9	2.03	0.57	27.9%	28.1%
	1999	186.2	2.92	0.98	33.7%	33.6%
	2000	26.4	4.16	1.85	44.5%	44.5%
	2001	25.3	3.73	1.55	41.6%	41.3%
	2002	28.5	3.58	1.39	38.9%	38.6%
	2003	23.7	4.40	1.85	42.0%	42.0%
	2004	19.3	4.79	2.07	43.1%	43.2%
	2005	19.4	3.85	1.81	47.0%	47.0%
	2006	36.6	2.89	1.15	39.8%	
	2007	56.7	3.83	1.74	45.4%	
	2008	52.8	4.05	1.77	43.6%	
	2009	43.2	3.43	1.45	42.2%	

Table 8-2First wholesale prices and ex vessel prices in the Bering Sea C. opilio fishery2009)

Source: North Pacific Fishery Management Council, Five-year review of Crab Rationalization

Program for BSAI crab fisheries – Dec. 28, 2010, page 109 (http://www.npfmc.org/wp-content/PDFdocuments/catch_shares/Crab/5YearRev1210.pdf) 33

Any ex-vessel price formula based on maintaining a constant "fisherman's share of the wholesale price" will cause the distribution of profits to change as wholesale prices change, unless the distribution of profits is identical to the distribution of costs.

CONCLUSION:

In markets in which wholesale prices or costs change significantly, the fisherman's share of the wholesale price is generally not a useful measure.

In the absence data on processors' costs and profits, it is tempting to look at the "fisherman's share." But that doesn't make it a useful measure.