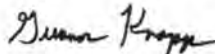


January 7, 2017

To: Chuck McCallum

From: Gunnar Knapp
Professor Emeritus of Economics
University of Alaska Anchorage Institute of Social and Economic Research (ISER)



This memo responds to your request for my professional opinion about whether differences in permit values between fisheries necessarily reflect differences in the potential earnings in those fisheries, and in particular whether differences in permit values between the Chignik and Kodiak salmon purse seine fisheries necessarily reflect differences in the potential earnings of permit holders in these two fisheries.

Please note that in responding to your request I am not intending to comment in any way on any policy issue which may be before the Board of Fisheries. I have not followed whatever issues the Board may be considering with respect to these fisheries and I have no opinion on them. So I'm only addressing the specific question you raised related to what relative permit valuations can tell us about relative earnings potential between two fisheries.

My background

By way of background, I retired at the end of June 2016 from the University of Alaska Anchorage Institute of Social and Economic Research (ISER). I spent most of my 35-year career at ISER studying economic issues related to salmon markets and salmon management, including factors affecting salmon fishery earnings and permit prices.

Upon my retirement, I was designated a "professor emeritus," which is basically an honorary distinction under which I retain an affiliation with ISER. I am doing a small amount of work for ISER under one contract related to economic impacts of southeast Alaska salmon fisheries, but am otherwise not receiving any pay from ISER or any other organization. However, I continue to maintain my professional interest in Alaska salmon markets and management.

The simple answer suggested by economic theory

Simple economic theory suggests that what a potential permit buyer would be willing to pay for a permit in a given fishery reflects the buyer's estimate of the present discounted value (e.g. value as of the present time) of the profits that he will be able to earn from the fishery in the future. Under this reasoning, if permit buyers are willing to pay more for a Fishery A permit than for a Fishery B permit, they presumably expect that they are likely to earn higher profits in Fishery A than in Fishery B.

What do the data show?

It's always a good idea to check whether available data support the logic of an economic theory. To do this with regard to the Chignik and Kodiak purse seine fisheries, I prepared the attached table comparing selected data for these fisheries for the most recent ten-year period for which data are available (2006-2010).

Selected data for the Kodiak (S01K) and Chignik (S01L) salmon purse seine fisheries

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Average permit price										
S01K	18,000	21,300	24,200	26,000	27,700	44,000	41,700	40,600	50,600	40,000
S01L	146,500	131,500	91,300	70,800	78,400	95,100	97,600	186,300	211,300	227,500
Ratio	0.12	0.16	0.27	0.37	0.35	0.46	0.43	0.22	0.24	0.18
Average earnings per permit fished										
S01K	191,505	173,984	166,749	190,795	129,137	250,596	244,927	333,048	190,573	173,209
S01L	99,265	105,427	161,165	180,557	192,456	399,095	200,623	417,091	113,366	126,138
Ratio	1.93	1.65	1.03	1.06	0.67	0.63	1.22	0.80	1.68	1.37
Average earnings, first quartile										
S01K	439,948	358,674	414,490	457,321	313,852	724,935	622,489	745,762	545,807	496,199
S01L	210,370	249,968	299,956	319,366	358,095	812,550	360,357	675,786	294,362	250,913
Ratio	2.09	1.43	1.38	1.43	0.88	0.89	1.73	1.10	1.85	1.98
Average earnings, second quartile										
S01K	289,271	255,152	250,238	305,184	224,280	453,987	409,765	502,911	328,654	305,384
S01L	141,970	178,648	238,946	257,793	268,280	615,590	279,354	544,693	194,716	195,995
Ratio	2.04	1.43	1.05	1.18	0.84	0.74	1.47	0.92	1.69	1.56
Average earnings, third quartile										
S01K	209,084	201,936	174,398	201,519	142,600	279,367	268,385	343,247	222,088	186,259
S01L	102,964	111,628	171,077	193,786	197,164	441,737	205,385	451,909	124,453	130,067
Ratio	2.03	1.81	1.02	1.04	0.72	0.63	1.31	0.76	1.78	1.43
Average earnings, fourth quartile										
S01K	97,062	88,096	84,034	95,594	60,991	113,944	117,877	172,473	86,250	80,217
S01L	53,659	50,655	89,149	101,455	109,693	201,926	113,188	244,669	52,342	66,680
Ratio	1.81	1.74	0.94	0.94	0.56	0.56	1.04	0.70	1.65	1.20
Total permanent permits renewed										
S01K	375	377	374	374	375	376	376	376	373	372
S01L	91	91	91	91	91	91	91	91	91	91
Ratio	4.12	4.14	4.11	4.11	4.12	4.13	4.13	4.13	4.10	4.09
Total permits issued/renewed										
S01K	375	377	374	374	375	376	376	376	373	372
S01L	96	92	92	91	91	91	91	91	91	91
Total permits fished										
S01K	130	140	128	157	154	174	166	167	184	180
S01L	48	55	54	55	65	64	69	76	70	71
Share of permits fished										
S01K	35%	37%	34%	42%	41%	46%	44%	44%	49%	48%
S01L	50%	60%	59%	60%	71%	70%	76%	84%	77%	78%

Data Sources: CFEC Basic Information Tables and Quartile tables

Clearly, during this period, Kodiak permit prices were much lower than Chignik permit prices, with the price of a Kodiak permit ranging from as low as 12% of the price of a Chignik permit (in 2006) to as high as 46% (in 2011).

However, average earnings per permit fished between these fisheries did not show the same disparity. Average earnings per permit fished were higher in the Kodiak fishery than for the Chignik fishery in seven of the ten years. In general, this was the case for all quartile groups: for all quartile groups, in most years, average earnings were higher in the Kodiak fishery than for the Chignik fishery.

Thus, whatever economic theory based on permit prices might seem to suggest, it seems hard to conclude that those permit holders who actually participated in the Chignik fishery were somehow doing far better economically than those who participated in the Kodiak fishery.

It should be noted that the theory of permit prices is based on expected future profits, which are of course not the same as earnings, but depend also on costs. Thus two fisheries might have similar earnings but one might have higher profits if it has lower costs. I'm not aware of any particular reason why there would be a huge difference in costs between these two fisheries, although differences in the geography of where people fish and the mix of species they fish for might affect the share of costs in total earnings and thus profits.

I am struck by the significant differences between these two fisheries in the share of permits fished (and its converse, the share on non-fished or latent permits). Clearly a much higher share of permits are fished in the Chignik fishery than in the Kodiak fishery. Put differently, there is a much higher share of unfished or latent permits in the Kodiak fishery than in the Chignik fishery.

I would hypothesize that this difference in the share of permits fished may reflect an important difference between the two fisheries which *may* help to explain the difference in permit prices. Clearly the number of permits in the Chignik fishery is closer to "optimal" for current run and market conditions than it is in the Kodiak fishery. The large number of latent permits may tend to hold down permit prices in Kodiak because a larger number of are likely to available for sale at any given time. Perhaps more importantly, there is less potential for upside gain in a permit holder's earnings in the Kodiak fishery should future prices and runs strengthen, because there is more potential for effort in the fishery to increase, spreading the available harvest among more permits.

Conclusion

I have not studied these fisheries in detail and I am not able to give a definitive explanation of the relative differences in permit prices in the Kodiak and Chignik fisheries. But given the fact that average earnings per permit fished have in recent years more often than not been higher in the Kodiak fishery than in the Chignik fishery, it seems hard to conclude that higher permit prices in the Chignik fishery necessarily imply that it is more profitable for active participants than the Kodiak fishery.