RC 012

Bristol Bay Set Gillnet Permit Stacking

serving fishing families. Table 4 describes the source of the second permit for year-end permit holdings, regardless of when they acquired the second permit. Almost half of the second permits held by year-end permit holders came from immediate family members. Among locals, a smaller percentage (between 11.1% and 16.7%) of permits came from individuals without association, whereas for nonlocals and nonresidents a higher proportion of the permits were sourced from persons other than family members or friends (between 29.6% and 36.4%).

Table 5 describes describes all permanent S04T permit transfers for the year and indicates the relationship between the transferor and transfer recipient. This includes permits used in both stacked and single permit operations. While it differs by showing transfers rather than holdings as Table 4 designates, it does provide information as to the rates of transfer among all permits.

Table 4. Source of Second Permanent Permit for Individuals with Two Permits at Year-end

Year	*Residency*	*Total No. of Persons with Stacked Permits*		*Friend/Partner*		*Immediate Family*		*Other Relative*		*Other*	
2010	Local	9	16.4%	2	22.2%	4	44.4%	2	22.2%	1	11.1%
	Nonlocal	27	49.1%	4	14.8%	13	48.1%	2	7.4%	8	29.6%
	Nonresident	19	34.5%	3	15.8%	10	52.6%	0	0.0%	6	31.6%
	Total 2010	***55***		***9***	***16.4%***	***27***	***49.1%***	***4***	***7.3%***	***15***	***27.3%***
2011	Local	12	12.6%	2	16.7%	5	41.7%	3	25.0%	2	16.7%
	Nonlocal	39	41.1%	5	12.8%	20	51.3%	2	5.1%	12	30.8%
	Nonresident	44	46.3%	9	20.5%	19	43.2%	0	0.0%	16	36.4%
	Total 2011	***95***		***16***	***16.8%***	***44***	***46.3%***	***5***	***5.3%***	***30***	***31.6%***

Table 5. Relationship of Transferors to Transfer Recipients by Year for All S04T Transfers

Year	*Total*	*Friend/Partner*		*Immediate Family*		*Other Relative*		*Other*	
2010	125	18	14.4%	61	48.8%	11	8.8%	35	28.0%
2011	107	21	19.6%	47	43.9%	8	7.5%	31	29.0%
1980-2011	***2,945***	***605***	***20.5%***	***1,170***	***39.7%***	***208***	***7.1%***	***962***	***32.7%***

** Transfer survey information is not included for permit foreclosures. However, subsequent transfers of these permits are included in the "other" category.*

From Table 5-1 Changes in the Distribution of Alaska's Commercial Fisheries Entry Permits, 1975-2011 for S04T permits

Report Continued

Submitted By BBEDC

Fishery Performance

Table 6 reports on the amount of nominal ex-vessel value from various classes of fishing operations. At first glance, it appears that ex-vessel values for each residency class are somewhat proportional from 2008 to 2011. In 2008, locals earned 35.9% of total ex-vessel value, in 2009 it was 35.2%, 36.4% in 2010 and 37.7% in 2011. Similar aggregate earnings are realized for nonlocals and nonresidents.

Table 6. Nominal Ex-vessel Value for Individuals by Residency and Single/Stacked Operations, 2008-2011

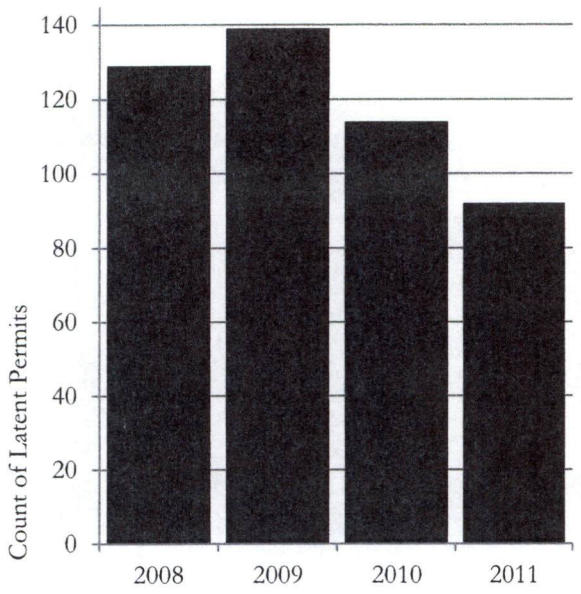
Year	*Residency*	*Operation Type*	*Individuals*	*Ex-Vessel Value*	*Average Ex-vessel Value*	*Individuals*	*Ex-Vessel Value*
2008	*Local*	Single	307	$7,555,755	$24,612	35.9%	36.1%
	Nonlocal	Single	267	$6,267,329	$23,473	31.3%	29.9%
	Nonresident	Single	280	$7,132,610	$25,474	32.8%	34.0%
	Total	***Single***	***854***	***$20,955,694***	***$24,538***	***100%***	***100%***
2009	*Local*	Single	302	$8,268,507	$27,379	35.2%	31.5%
	Nonlocal	Single	273	$8,177,398	$29,954	31.8%	31.2%
	Nonresident	Single	283	$9,765,994	$34,509	33.0%	37.3%
	Total	***Single***	***858***	***$26,211,898***	***$30,550***	***100%***	***100%***
2010		Single	277	$9,281,011	$33,505	33.9%	29.9%
	Local	Stacked	20	$1,388,736	$69,437	2.5%	4.5%
		Combined	*297*	*$10,669,747*	*$35,925*	*36.4%*	*34.4%*
		Single	216	$6,642,671	$30,753	26.5%	21.4%
	Nonlocal	Stacked	27	$2,368,459	$87,721	3.3%	7.6%
		Combined	*243*	*$9,011,130*	*$37,083*	*29.8%*	*29.0%*
		Single	255	$9,500,259	$37,256	31.3%	30.6%
	Nonresident	Stacked	21	$1,840,943	$87,664	2.6%	5.9%
		Combined	*276*	*$11,341,203*	*$41,091*	*33.8%*	*36.6%*
		Single	***748***	***$25,423,941***	***$33,989***	***91.7%***	***82.0%***
	Total	***Stacked***	***68***	***$5,598,139***	***$82,326***	***8.3%***	***18.0%***
		Combined	***816***	***$31,022,079***	***$38,017***	***100%***	***100%***
2011		Single	284	$8,987,217	$31,645	35.7%	32.8%
	Local	Stacked	16	$1,070,626	$66,914	2.0%	3.9%
		Combined	*300*	*$10,057,843*	*$33,526*	*37.7%*	*36.8%*
		Single	192	$5,279,503	$27,497	24.2%	19.3%
	Nonlocal	Stacked	43	$2,852,534	$66,338	5.4%	10.4%
		Combined	*235*	*$8,132,037*	*$34,604*	*29.6%*	*29.7%*
		Single	219	$6,675,071	$30,480	27.5%	24.4%
	Nonresident	Stacked	41	$2,499,719	$60,969	5.2%	9.1%
		Combined	*260*	*$9,174,790*	*$35,288*	*32.7%*	*33.5%*
		Single	***695***	***$20,941,791***	***$30,132***	***87.4%***	***76.5%***
	Total	***Stacked***	***100***	***$6,422,879***	***$64,229***	***12.6%***	***23.5%***
		Combined	***795***	***$27,364,670***	***$34,421***	***100%***	***100%***

Note, however, the number of locals participating in the fishery remains relatively constant while the overall number of nonlocals and nonresidents has declined. Table 7 and Figure 4 depict the reduction in latent permits as they are pulled into the fishery to create stacked permit operations.

Table 7. Counts of Permits used in Fishing Operations

Year	Total Permits Fished	Year End Permits	% Permits Fished
2008	850	979	*86.8%*
2009	843	982	*85.8%*
2010	868	982	*88.4%*
2011	889	981	*90.6%*

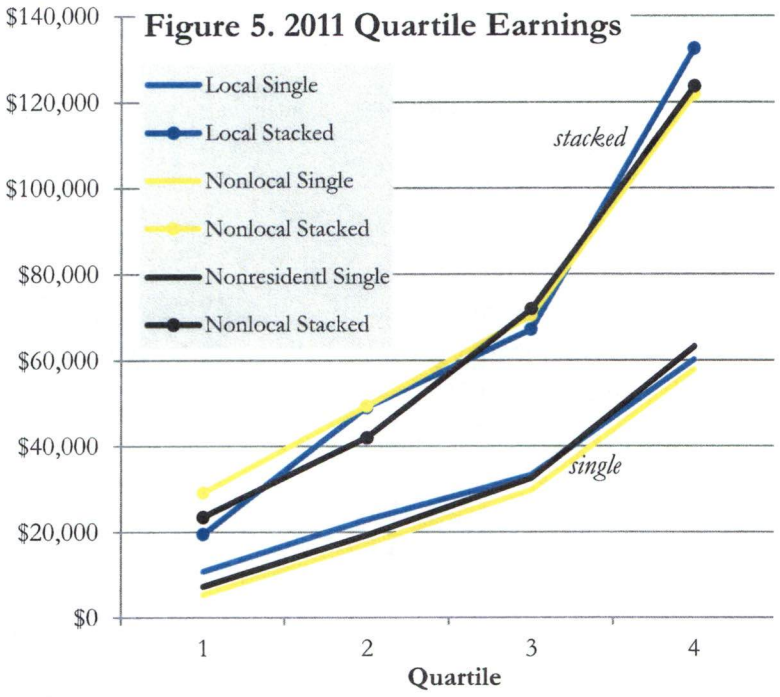
Figure 4. S04T Latent Permits



It should also be noted that the average income for individuals with permit stacking operations is more than twice that of single permit operations.

It would seem logical that overall, individuals who are more capable of making landings would be in a better position to invest some of their earnings into making their operations more profitable by purchasing a second permit, as they would be more likely to have additional capital from their earnings. While average ex-vessel value is one metric of performance, there still exists a wide range of earnings across individuals. Figure 5 shows data from Table 8, which outlines average ex-vessel earnings by quartile. Quartile 1 is the bottom 25% of earners, while quartile 4 shows the top 25% of individuals. The higher sets of lines are average earnings among stacked permit holders, and the lower set of lines are from individuals who only made landings with a single permit. While one would expect a varying array of both skill and luck in landing fish, it is interesting that the earnings across quartiles among each of the residency classes

Figure 5. 2011 Quartile Earnings



are evenly distributed. This suggests that individuals from each of the residency classes are fairly comparable in their ability to make landings. While earnings for each quartile may be fairly consistent across residency class, there still remain substantial differences in the counts of individuals stacking permits by residency classes. Given the same opportunity, the distribution of locals, nonlocals, and nonresidents in terms of ability to make landings appears equal.

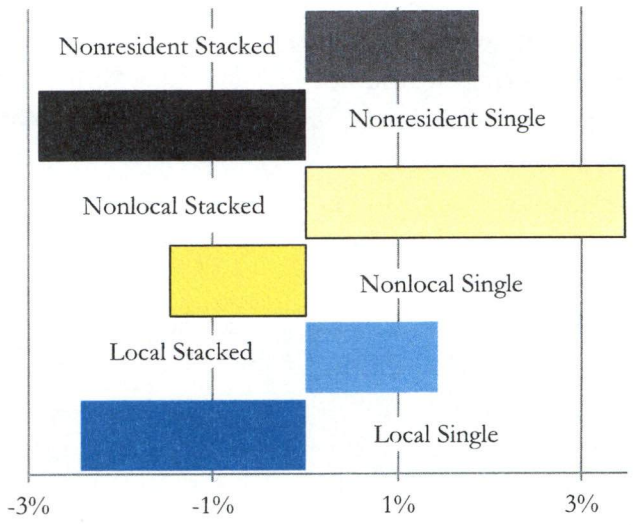
Table 8. Quartile Earnings

2010	Local				Nonlocal				Nonresident			
	Single		*Stacked*		*Single*		*Stacked*		*Single*		*Stacked*	
Quartile	Value	Count	Value	Count	Value	Count	Value	Count	Value	Count	Value	Count
1	$9,389	70	$19,995	5	$6,754	54	$29,638	7	$7,509	64	$48,274	5
2	$23,855	70	$42,917	5	$18,226	54	$54,087	7	$21,850	64	$66,699	5
3	$36,174	70	$54,711	5	$32,297	54	$103,972	7	$37,740	64	$86,700	5
4	$65,986	67	$160,124	5	$65,734	54	$175,763	6	$82,626	63	$138,763	6

2011	Local				Nonlocal				Nonresident			
	Single		*Stacked*		*Single*		*Stacked*		*Single*		*Stacked*	
Quartile	Value	Count	Value	Count	Value	Count	Value	Count	Value	Count	Value	Count
1	$10,670	71	$19,350	4	$5,290	48	$29,033	11	$7,324	55	$23,483	11
2	$22,739	71	$48,968	4	$17,161	48	$49,318	11	$19,333	55	$41,939	11
3	$33,088	71	$67,049	4	$29,700	48	$70,335	11	$32,602	55	$71,890	11
4	$60,083	71	$132,290	4	$57,838	48	$121,700	10	$63,257	54	$123,660	8

Some individuals suggested in their public comments that fishermen would not be harmed by permit stacking because the second permit in a stacked operation would only come from permits already fished. If no latent permits were used for permit stacking and each permit landed an equal number of fish this likely would be true. Figure 4 shows that many latent permits were brought into use since permit stacking went into effect. While permits are homogenous in providing access to the fishery, individuals that hold permits vary in ability to make landings, as shown in Figure 5 and Table 8. With a lower proportion of locals participating in permit stacking, there is likewise a lower amount of benefits derived to locals. Figure 6 describes Table 9, which outlines the redistribution of landings brought about by permit

Figure 6. Redistribution Due to Stacking



stacking. The landings of individuals who fished in both 2008 and 2011 were compared. Residency was determined by the permit holder's 2011 status. While this may be a limited view comparing only two years, other years were observed and results were similar. Table 9 indicates that 33 nonlocals had stacked permit operations in 2011 and also made landings in 2008. This 3.4% of individuals landed 8.1% of all fish in 2008, before stacking, and 11.6% of the fish in 2011. As a result of permit stacking, for the comparison years, both locals and nonresidents landed fewer fish overall while nonlocals landed proportionately more. Each of the single permit operations effectively landed fewer fish as stacked operations increased their share of the landings.

Table 9. Proportion of Fish Landed Before and After S04T Permit Stacking Regulations

		People		Number of Fish Landed				
		Count	*Percent*	*2008*	*2011*	*2008*	*2011*	*difference*
Local	*Single*	207	21.4%	1,368,131	1,026,407	34.4%	31.9%	*-2.4%*
	Stacked	13	1.3%	101,734	128,018	2.6%	4.0%	*1.4%*
	Total	*220*	*38.1%*	*1,469,865*	*1,154,425*	*36.9%*	*35.9%*	*-1.0%*
Nonlocal	*Single*	135	14.0%	818,992	614,377	20.6%	19.1%	*-1.5%*
	Stacked	33	3.4%	322,043	371,340	8.1%	11.6%	*3.5%*
	Total	*168*	*29.1%*	*1,141,035*	*985,717*	*28.7%*	*30.7%*	*2.0%*
Nonresident	*Single*	157	16.3%	1,049,515	754,513	26.4%	23.5%	*-2.9%*
	Stacked	33	3.4%	319,085	317,985	8.0%	9.9%	*1.9%*
	Total	*190*	*32.9%*	*1,368,600*	*1,072,498*	*34.4%*	*33.4%*	*-1.0%*
	Total Single	***499***	***86.3%***	***3,236,638***	***2,395,297***	***81.3%***	***74.6%***	***-6.8%***
	Total Stacked	***79***	***13.7%***	***742,862***	***817,343***	***18.7%***	***25.4%***	***6.8%***

New Entrants into the S04T Fishery

Public comments to the Board indicated that permit stacking could affect new entrants into the S04T fishery. Opponents voiced concerns to the Board that permit stacking would make it more difficult to enter the fishery due to increases in permit prices or having to buy a second permit to be competitive. Proponents argued that permit stacking would make the fishery more profitable; therefore, more individuals would be enticed to enter the fishery.

New entrants are defined herein as individuals who record a landing on an S04T permit for the first time. Prior to permit stacking, on average just over 10% of the permit holders were new entrants between 1992 and 2011. In 2010, the rate dropped to 8.3%, and went to a historic low of 6% in 2011.

Figure 7. New Entrants into the S04T Fishery

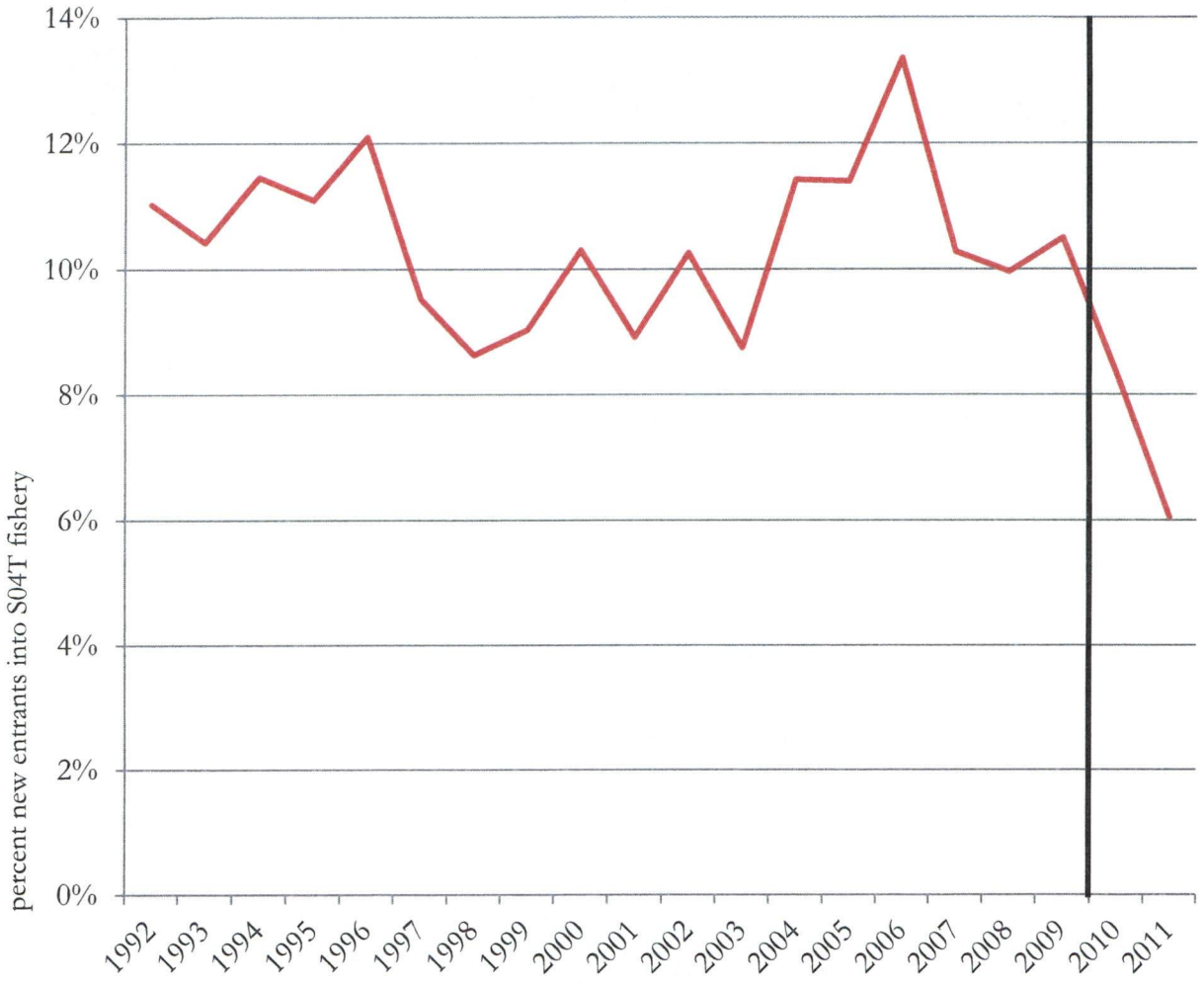


Table 10. New Entrants into the S04T Fishery

Year	Local			Nonlocal			Nonresident			*Total S04T*		
	New	Total	% New	New	Total	% New	New	Total	% New	*New*	*Total*	*% New*
1992	34	455	*7.5%*	41	292	*14.0%*	35	251	*13.9%*	*110*	*998*	*11.0%*
1993	44	451	*9.8%*	39	292	*13.4%*	19	246	*7.7%*	*103*	*989*	*10.4%*
1994	43	435	*9.9%*	30	272	*11.0%*	35	245	*14.3%*	*109*	*952*	*11.4%*
1995	41	448	*9.2%*	41	292	*14.0%*	28	252	*11.1%*	*110*	*992*	*11.1%*
1996	35	421	*8.3%*	35	291	*12.0%*	45	247	*18.2%*	*116*	*959*	*12.1%*
1997	33	406	*8.1%*	31	290	*10.7%*	26	250	*10.4%*	*90*	*946*	*9.5%*
1998	23	394	*5.8%*	27	273	*9.9%*	29	249	*11.6%*	*79*	*916*	*8.6%*
1999	21	386	*5.4%*	31	296	*10.5%*	32	249	*12.9%*	*84*	*931*	*9.0%*
2000	28	370	*7.6%*	30	297	*10.1%*	38	266	*14.3%*	*96*	*933*	*10.3%*
2001	26	334	*7.8%*	27	265	*10.2%*	22	243	*9.1%*	*75*	*842*	*8.9%*
2002	22	286	*7.7%*	19	186	*10.2%*	29	211	*13.7%*	*70*	*683*	*10.2%*
2003	23	301	*7.6%*	21	229	*9.2%*	22	237	*9.3%*	*67*	*767*	*8.7%*
2004	30	294	*10.2%*	28	247	*11.3%*	32	256	*12.5%*	*91*	*797*	*11.4%*
2005	35	308	*11.4%*	33	264	*12.5%*	27	262	*10.3%*	*95*	*834*	*11.4%*
2006	34	317	*10.7%*	33	263	*12.5%*	47	274	*17.2%*	*114*	*854*	*13.3%*
2007	27	309	*8.7%*	28	260	*10.8%*	32	278	*11.5%*	*87*	*847*	*10.3%*
2008	22	307	*7.2%*	29	267	*10.9%*	34	280	*12.1%*	*85*	*854*	*10.0%*
2009	19	302	*6.3%*	43	273	*15.8%*	28	283	*9.9%*	*90*	*858*	*10.5%*
2010	17	297	*5.7%*	25	243	*10.3%*	26	276	*9.4%*	*68*	*816*	*8.3%*
2011	20	300	*6.7%*	9	235	*3.8%*	19	260	*7.3%*	*48*	*795*	*6.0%*

New is the count of individuals who made landings for the first time in the S04T fishery
Total is the count of all individuals who made landings in the S04T fishery

Permit Value

A substantial amount of the discussion on permit stacking has revolved around how the regulations might affect the value of Bristol Bay set gillnet permits. Some persons have hypothesized that permit values would increase, while others have suggested the option would not influence values. Several of the proposals related to permit stacking for the December 2012 Board of Fisheries meeting mentioned that permit values have increased as a result of permit stacking.

Figure 8 illustrates monthly CFEC estimated permit values from January 2008 (prior to stacking) through October 2012, for both the Bristol Bay set gillnet and drift gillnet fisheries. From January 2008 through the end of 2009, Bristol Bay set gillnet permit prices maintained a relatively constant value. However, since January of 2010, when permit stacking was allowed, the fair market value of set gillnet permits rose 64.2% from $25,700 to $42,200. Values for drift gillnet permits fluctuated significantly over the period, while set gillnet permit values rose at a steady rate since permit stacking. Over the same period, drift gillnet permits also rose in value, from $83,000 to $96,700, which is a 16.5% increase.

Figure 8. Bristol Bay Salmon Permit Value

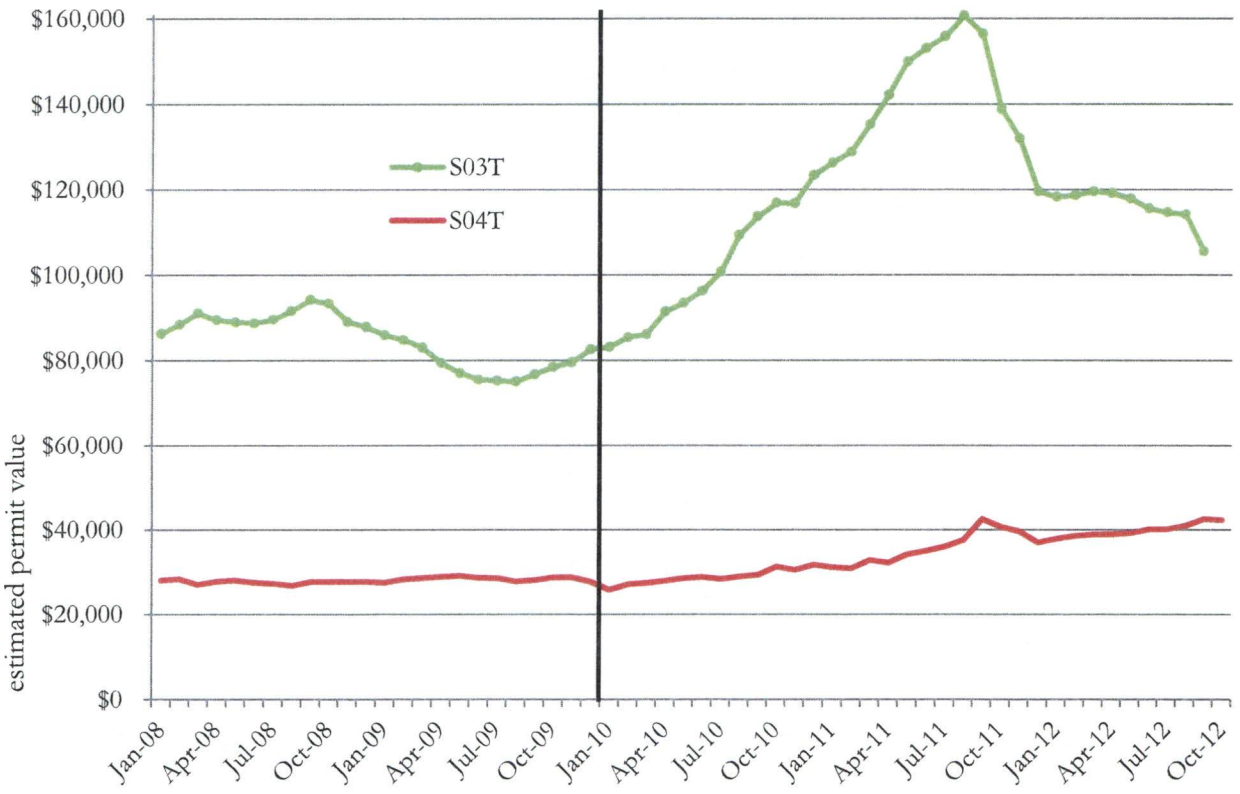


Table 11. Nominal Bristol Bay Salmon Permit Value by Month

Month	S03T	S04T
Jan-08	$86,100	$28,000
Feb-08	$88,300	$28,300
Mar-08	$90,900	$27,000
Apr-08	$89,300	$27,700
May-08	$88,800	$27,900
Jun-08	$88,600	$27,400
Jul-08	$89,400	$27,100
Aug-08	$91,500	$26,700
Sep-08	$94,100	$27,600
Oct-08	$93,200	$27,600
Nov-08	$88,900	$27,600
Dec-08	$87,700	$27,600
Jan-09	$85,800	$27,400
Feb-09	$84,700	$28,100
Mar-09	$82,900	$28,400
Apr-09	$79,300	$28,700
May-09	$76,900	$29,000
Jun-09	$75,400	$28,500
Jul-09	$75,200	$28,400
Aug-09	$74,900	$27,700
Sep-09	$76,600	$28,000
Oct-09	$78,300	$28,600
Nov-09	$79,400	$28,600
Dec-09	$82,500	$27,600
Jan-10	$83,000	$25,700
Feb-10	$85,300	$27,000
Mar-10	$86,000	$27,300
Apr-10	$91,300	$27,800
May-10	$93,400	$28,400
Jun-10	$96,200	$28,700
Jul-10	$100,700	$28,300
Aug-10	$109,300	$28,800
Sep-10	$113,600	$29,200
Oct-10	$116,800	$31,200
Nov-10	$116,700	$30,400
Dec-10	$123,300	$31,600
Jan-11	$126,200	$31,000
Feb-11	$128,800	$30,800
Mar-11	$135,300	$32,800
Apr-11	$142,100	$32,100
May-11	$149,900	$34,100
Jun-11	$153,100	$35,000
Jul-11	$155,800	$36,000
Aug-11	$160,600	$37,600
Sep-11	$156,300	$42,500
Oct-11	$138,800	$40,700
Nov-11	$131,900	$39,600
Dec-11	$119,500	$37,000
Jan-12	$118,200	$37,800
Feb-12	$118,600	$38,500
Mar-12	$119,500	$38,800
Apr-12	$119,100	$38,900
May-12	$117,800	$39,200
Jun-12	$115,500	$40,100
Jul-12	$114,600	$40,100
Aug-12	$114,100	$40,900
Sep-12	$105,500	$42,500
Oct-12	$96,700	$42,200

In addition to observing trends in estimated permit values, a regression model was developed to consider changes in permit value due to permit stacking. The model used all real (adjusted for inflation) permit prices from sale transactions between 1980 and 2011.

The model's coefficient of determination (R^2) produced a value of 0.78. This means that 78% of the variation in permit prices from 1980 to 2011 is explained by the model. The model suggests that permit stacking with a sunset date increased the value of a permit by $14,685. For every pound of salmon landed by the salmon set gillnet fishery, the model suggests that permit value increases $0.000451. In 2010, over 34 million pounds were harvested, and in 2011 the amount was more than 25 million pounds, so this amount is substantial. The model also indicates that for each metric ton of farmed Atlantic salmon that is produced, the value of an S04T permit drops more than a nickel.

Table 12. Model Values Output

Variable	Coefficient
Intercept	$78,855
Total Pounds Landed	$0.000451
Permit Stacking	$14,685
Metric Ton Farmed Atlantic Salmon	-$0.0513

Data for the model and additional output can be found in Appendix C. While individual sales transactions cannot be represented in this paper due to reasons of confidentiality, a boxplot representing permit value depicts measures of central tendency and dispersion among actual permit sales.

Conclusion

Permit stacking from 2010 to 2012 in the Bristol Bay salmon set gillnet fishery has brought about many changes in the fishery. Nonlocals and nonresidents have a higher rate of participation in permit stacking operations than locals. Permit stacking brings permits out of latency, thus increasing the number of permits used; however, the number of individuals fishing has substantially decreased with the exception of local fishermen. Limited data suggests that stacked permit operations reallocate harvests across residency classes in Bristol Bay. Since implementation of permit stacking, the number of new entrants into the S04T fishery has declined. The estimated value for the S04T permit has significantly increased as a result of permit stacking.