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# Can vessel buybacks pay off: An evaluation of an industry funded fishing vessel buyback

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# Industry Funded Buyback and Catch Shares

- A criticism of fishing vessel and license buybacks is that they encourage additional investment in capacity that erodes the original gains of the program and are typically funded with public money which subsidizes a small group of individuals for little or no long-term gain
- In the US several buybacks were partially or fully funded by industry under the authority of the MSA (16 U.S.C. 1861a MSA § 312 Section 109-479)
- Industry funded buybacks have generally been implemented in conjunction with implementation of “catch share” programs that allocated shares of the total allowable catch to individuals (IFQs) or groups of permit holders (cooperatives)
- Catch shares should help preserve efficiency gains of removing excess capacity by reducing incentives to replace capacity and to race for fish



# The Pacific Groundfish Buyback

- The Pacific groundfish buyback took place in 2003 and permanently removed 91 groundfish trawl vessels and permits (and an additional 121 state permits for Dungeness crab and pink shrimp held by these vessels) at a cost of \$46 million.
- The buyback used a reverse auction that scored bids by dividing each bid amount by the vessel's average annual ex-vessel landings value
- Financed with \$10 million in public funds and a loan for \$36 million
- Approximately \$28.4 million to be paid back within 30 years with a 5% fee on ex-vessel revenue from all trawl-caught groundfish
- The remainder of the loan was to be paid back by landings fees on crab and pink shrimp (that portion of the loan has already been repaid)
- After the auction was held determining how many permits and how much associated catch history would be removed, a referendum passed with over 85% approval to move forward with buyback



# Pacific Groundfish Catch Share Program

- Catch shares implemented in 2011 (8 years after buyback) but with quota allocations based on pre-buyback (1994-2003) catch history
- In the interim years no new permits were issued and catch was managed primarily with bi-monthly cumulative vessel catch limits, but there was resale of permits allowed and some latent permits were activated
- An IFQ was implemented in 2011 for shore-side groundfish sector. Cooperatives were implemented for at-sea whiting sectors (mothership and catcher processor)
- Whiting catcher-processors had already been operating as a cooperative since 1997 and were not part of the buyback (or repayment of it)
- Catch history associated with bought out vessels was pooled and distributed evenly amongst all remaining permit holders as quota share (QS) supplementing the QS allocated based on their personal history
- The 5% landings fee on trawl caught groundfish was maintained as loan repayment mechanism for the buyback. Groundfish caught with fixed gear in the IFQ fishery is also assessed the 5% fee.



# Research Question

*Have additional profits generated by the buyback for the remaining permit owners exceeded the cost of financing the buyback?*

# Average Cost of Financing the Buyback Loan

Loan/Payment Assumptions		Annual Payment (millions)	Description
Scenario 1	2004 Principal: \$28.4 Million Length: 30 Years (2004-2033)	\$2.28	“Scenario the participants voted for”
Scenario 2	2011 Principal: \$32.5 Million Length: 23 Years (2011-2033)	\$2.88	Actual situation in 2011 when catch shares implemented
Scenario 3:	Total cost: \$38.4 Million Length: 30 Years (2004-2033)	\$3.05	Total cost (including tax-payer funded \$10 million)

- Fixed annual payments (millions of nominal dollars) necessary to pay back the cost of the Pacific groundfish trawl buyback by 2033 under alternative scenarios assuming the current 6.97% interest rate.
- Scenario 2 reflects the average cost of loan repayment the industry faced when IFQ was implemented in 2011
- Actual loan repayment is by 5% landings fee, so annual payments vary each year with the total value of landings

# Reallocation of Buyback Quota

- Percent removed by the buyback varied by species.
  - Over 41-43% for key target species sablefish, petrale sole, and dover sole.
  - Only 5.7% for Pacific whiting.
  - Rebuilding species quota shares distributed in proportion to target species allocations.
- In fisheries targeting a fully utilized species, we assume buyback quota generated a share of net revenue proportional to the buyback percentage
- Our analysis assumes that the buyback quota provides no additional net revenue in sub-fisheries not catching a significant amount of a fully utilized species

	IFQ Species	Buyback Quota %	Utilization %
Constraining target species	Pacific whiting	5.68%	94.0%
	Petrale sole	43.09%	95.0%
	Sablefish North of 36° N.	41.25%	93.0%
Non-constraining species	Arrowtooth flounder	46.76%	37.7%
	Chilipepper rockfish South of 40°10' N.	18.04%	25.7%
	Dover sole	41.42%	31.1%
	English sole	35.40%	2.5%
	Lingcod	39.75%	17.4%
	Longspine thornyheads North of 34°27' N.	41.58%	48.0%
	Minor shelf rockfish North of 40°10' N.	35.24%	5.3%
	Minor shelf rockfish South of 40°10' N.	23.05%	12.7%
	Minor slope rockfish North of 40°10' N.	40.08%	21.5%
	Minor slope rockfish South of 40°10' N.	29.89%	24.5%
	Other flatfish	30.23%	16.8%
	Pacific cod	46.59%	20.1%
	Sablefish South of 36° N.	32.23%	43.4%
	Shortspine thornyheads North of 34°27' N.	40.41%	49.1%
	Shortspine thornyheads South of 34°27' N.	0.00%	7.3%
	Splitnose rockfish South of 40°10' N.	22.21%	3.4%
	Starry flounder	19.37%	1.3%
Yellowtail rockfish North of 40°10' N.	35.40%	29.4%	
Rebuilding species, allocated according to bycatch to target species ratio	Bocaccio rockfish South of 40°10' N.		12.1%
	Canary rockfish		21.7%
	Cowcod South of 40°10' N.		10.7%
	Darkblotched rockfish		35.3%
	Pacific halibut North of 40°10' N.*		29.8%
	Pacific ocean perch North of 40°10' N.		38.6%
	Widow rockfish		45.5%
Yelloweye rockfish		6.6%	



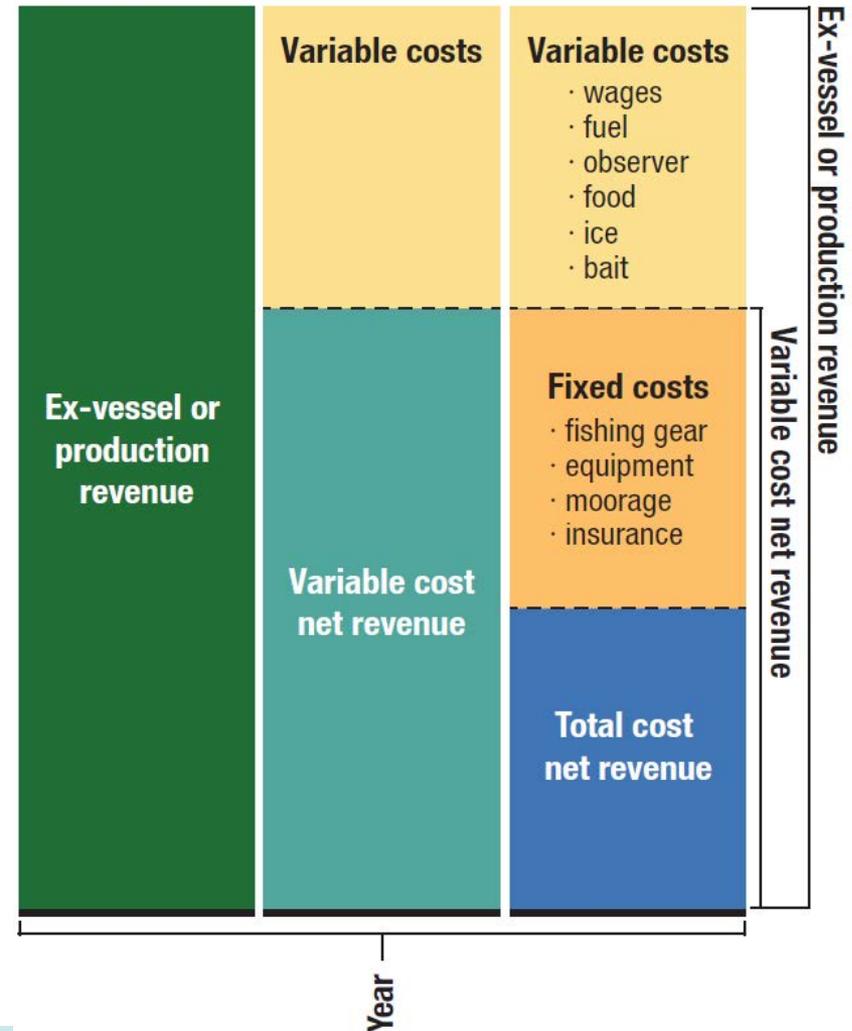
# Estimating the Value of Buyback Quota

- We use two alternative methods to estimate the value that the buyback quota has generated for the permit holders that received it
- **Method 1:** we estimate the fleet-level annual net revenues (gross revenues minus costs other than costs of capital) associated with the buyback quota using comprehensive cost-earnings data for 2009 through 2014
- **Method 2:** we use quota pound (QP) prices to estimate the value generated by the buyback quota annually. This might also be considered the opportunity cost of not fishing the buyback quota pounds rather than selling them



# Valuing Buyback Quota with Net Revenues

- We combine NWFSC EDC cost data with PacFIN fish ticket data on gross revenues
- Variable cost net revenue (VCNR), is calculated by subtracting variable costs such as captain and crew wages and costs of fuel, supplies, ice, food, and bait, IFQ cost recovery fees, and observer costs from gross revenues.
- Total cost net revenue (TCNR), additionally subtracts annual fixed costs such as capitalized expenditures and expenses on maintenance, fishing gear, and equipment from VCNR
- The 5% landings fee associated with the buyback is not deducted from either VCNR or TCNR since the purpose is to assess whether the net revenues are sufficient to cover these loan repayment costs



# Valuing Buyback Quota with Net Revenues

- Net revenues are calculated at vessel-trip level and aggregated up to the sub-fishery level
- We count the percent of net revenues equal to fraction of catch history that was removed by the buyback for the primary fully utilized target species in each sub-fishery (e.g., 41% of net revenue for DTS and Northern fixed gear sablefish sub-fisheries, 43% for non DTS bottom trawl (Petrale-rockfish), and and 5.7% for Pacific whiting sub-fisheries)
- We also calculate the buyback landings fees at the sub-fishery level for comparison

Revenue, variable cost net revenue (VCNR), and total cost net revenue (TCNR) associated with buyback quota, and total buyback fees for whiting and non-whiting sectors of the groundfish trawl fishery, from 2009 to 2014 (millions of nominal dollars).

Sub-Fishery	Financial Measure	2009	2010	2011	2012	2013	2014	Average 2011-2014
Pacific Whiting	BB % Revenue	0.53	1.08	1.97	1.71	2.16	0	1.46
	BB % VCNR	0.22	0.49	1.02	0.69	1.01	0	0.68
	BB % TCNR	-0.06	0.07	0.41	0.04	0.51	0	0.24
	Total Buyback fees	0.40	0.81	1.78	1.61	2.07	2.00	1.86
Non-whiting Groundfish	BB % Revenue	11.73	10.61	13.11	11.40	11.68	11.07	11.81
	BB % VCNR	4.50	4.01	5.39	4.38	4.54	3.96	4.57
	BB % TCNR	1.23	1.29	2.44	1.17	2.54	2.37	2.13
	Total Buyback fees	1.33	1.21	1.57	1.39	1.41	1.40	1.44
All Groundfish Trawl Endorsed	BB % Revenue	12.26	11.69	15.08	13.11	13.84	11.07	13.28
	BB % VCNR	4.72	4.49	6.41	5.07	5.55	3.96	5.25
	BB % TCNR	1.17	1.37	2.85	1.20	3.05	2.37	2.37
	Total Buyback fees	1.72	2.03	3.35	3.00	3.48	3.40	3.31

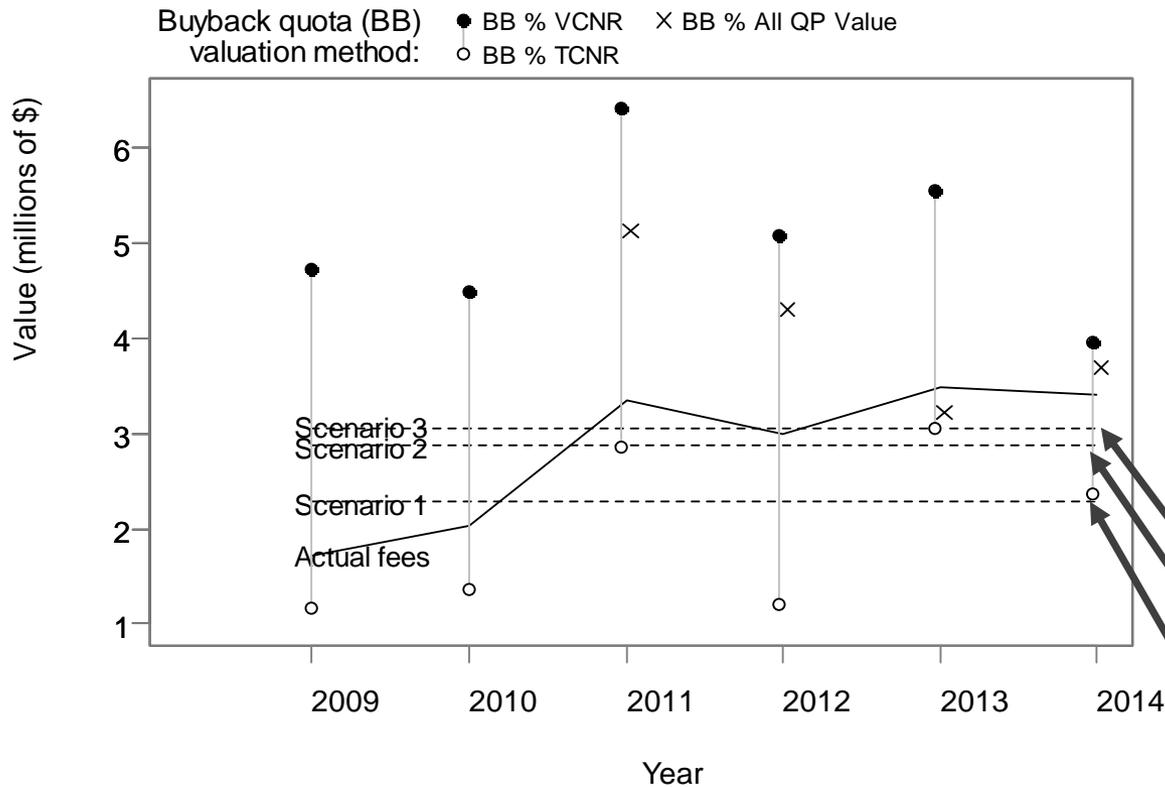
# Valuing Buyback Quota with Quota Pound Prices

- Quota pounds (QP) are the annual form of quota. Sales of QP are analogous to leasing quota shares for a year
- All QP transfers are done through NMFS system, but average QP prices are calculated from single-species cash transfers only since they provide the only usable price data
- The value generated by the buyback quota each year is estimated by multiplying these QP prices by the quantities of QP that current permit owners received as a result of the buyback (value of total QP allocated by species times the buyback percentages)

# Buyback QP Value by Sector

- Estimated total buyback quota pound (QP) sale value (millions of nominal dollars) calculated as the buyback percent of all QP issued (BB % All QP Value).
- Actual buyback landings fees are shown for context.

Quota Species/Group	Measure	2011	2012	2013	2014	Average 2011-2014
Pacific whiting	BB % All QP Value	0.37	0.51	0.74	0.68	0.57
	Buyback Fees Paid	1.78	1.61	2.07	2.00	1.87
Non-whiting groundfish	BB % All QP Value	4.75	3.78	2.48	3.01	3.51
	Buyback Fees Paid	1.57	1.39	1.41	1.40	1.44
All Groundfish	BB % All QP Value	5.12	4.29	3.22	3.69	4.08
	Buyback Fees Paid	3.35	3.00	3.48	3.40	3.31



- Under most methods, since the implementation of the catch share program, the benefits exceed the financing costs of the program.
- Benefits of the buyback program accrue to quota share owners, but it is vessel operators who pay the buyback fees.

Total cost of program

Cost of loan, starting repayment in 2006

Cost of loan, if repayment started in 2004

Fixed annual payments necessary to pay back the cost of the buyback program under three scenarios (dashed lines), actual fees (solid line), and value of buyback quota pounds using three methods (% of variable cost net revenue, % of total cost net revenue, % of All QP value).

# Conclusions: The Buyback Financed Consolidation

- The buyback played a role in generating agreement to move toward a catch share system
- It provided a means for remaining vessels to finance consolidation of quota (without access to private capital) and thereby improved efficiency and profitability for the remaining fleet
- Permit stacking or a direct move to an IFQ without a buyback would likely have slowed consolidation and necessitated private financing which might have been more expensive or unavailable for many permit holders

# Conclusions: Buyback a Good Deal for Industry? Maybe?

- Which is the appropriate measure (VCNR, TCNR, QP value)?
  - VCNR generated by the buyback quota exceeded the average cost of financing the buyback and actual buyback landings fees
  - The value of buyback QP (based on QP prices) also exceeded buyback landings fees and average financing cost
  - TCNR has not exceeded the actual buyback fees or the average cost of buyback financing post 2011.
- Since fixed costs were reduced as a share of revenue benefits from supplemented buyback quota likely are closer to VCNR and QP measures suggesting an overall gain from the buyback in the years since the IFQ was implemented
- Total landings fees have also exceeded average repayment costs in recent years so the % of the landing fee could potentially be lower and still repay loan on time – particularly if fish prices and revenue rise over time.



# Choosing Buyback Repayment Mechanism

- The use of landings fees as a repayment mechanism reduces risk relative to a fixed payment but creates asymmetry between who benefits from and who pays for the buyback and that asymmetry may increase over time
- Not all current IFQ permit owners got buyback quota and many who did are not currently fishing and paying buyback landings fees
- Some vessels are unprofitable with the 5% landings fee
- QP lease prices should (theoretically) be lower due to buyback fees, which would help shift repayment costs back to QS owners
- The whiting fishery is paying an outsize share of buyback fees but some whiting fishery permit owners did receive non-whiting quota shares from buyback
- Recovering buyback costs directly from Quota Share owners might have been more equitable but MSA statutes specify repayment with a landings fee collected by the first ex-vessel fish purchaser (16 U.S.C. 1861a MSA § 312 Section 109-479 (d) (2))



# Thank You

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