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Industry Perceptions of Measures to Affect Access to Quota Shares, Active Participation, and Lease Rates in the BSAI Crab Fisheries

Amber Himes-Cornell & Keeley Kent



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Timeline: BSAI Crab Rationalization Program Development

- 2005: BSAI Crab Rationalization program implemented
- 2007: 18-Month Review
- 2008: 3-Year Review
- 2010: 5-Year Review
 - Post-5 Year Review Council prioritization of issues to address
 - Modifications to the Right of First Refusal provisions
 - Establishment of emergency exemption process for regional delivery requirements
 - Modifications to provisions of the arbitration system
 - Modifications to the Economic Data Reports
 - Changes to sideboard exemptions for Gulf of Alaska pollock and cod
 - Transfer of quota shares among non-active participants
 - Amount of lease rate charged against crew compensation

Timeline: Focusing on what is yet to be finalized

- 2011: Council motion for discussion paper on 'Active participation, entry opportunities, crew compensation, and lease rates'
 - Intent is to 'promote quota acquisition by crew and active participants and promote equitable crew compensation practices'
- 2012: NPFMC discussion paper '*Cooperative measures to address active participation and crew issues*'
- 2013: Review RIR/RFA of 'Defining active participation requirements for the acquisition and use of owner shares'
 - No further action taken; NPFMC motion to allow coops to internally address the issues
- 2013: NPFMC letter to coops soliciting annual reports on voluntary measures
- 2013: 'Right of First Offer' program and voluntary lease rate caps implemented
- 2013: Coops submit first letter to NPFMC on voluntary measures
- 2014: AFSC implements data collection project on voluntary measures

AFSC Study: Opinions of BSAI crab fisheries participants

What?

Study to gather perspectives on new voluntary measures to address lease rates, active participation, and access to quota shares for skippers and crew

Why?

Provide information complementary to crab cooperative reports on effectiveness of voluntary measures

How?

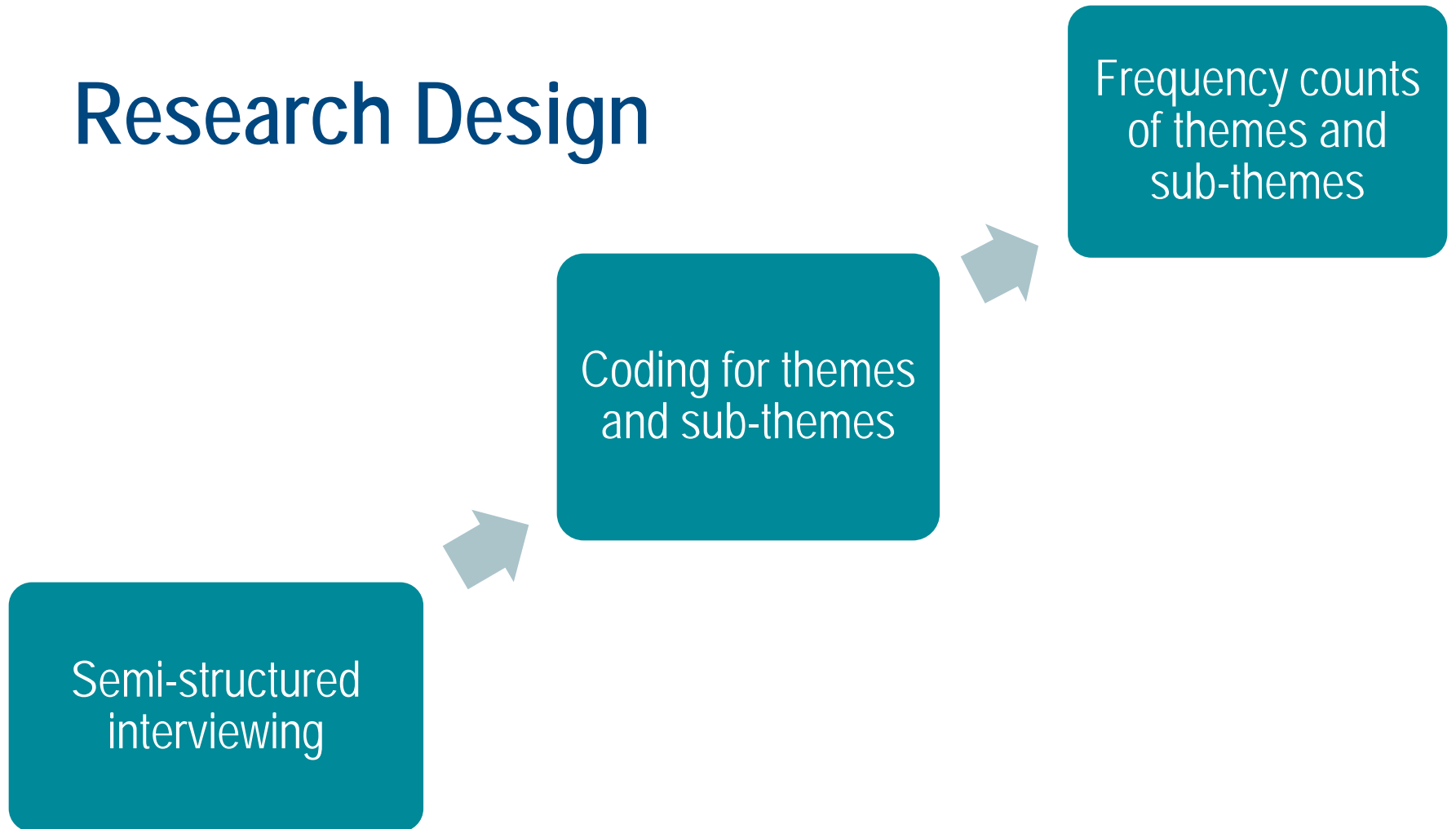
Census of industry participants using semi-structured interviews

Cooperative measures

- Right of First Offer Program
 - Allows eligible individuals or entities to sign up through a website to receive email notifications when quota shares become available
- Voluntary Lease Rate Cap
 - 65% BBRKC, 50% BSS

Cooperative name	ROFO participation	Voluntary lease rate cap participation
Alaska King Crab Harvesters Cooperative	Voluntary	Voluntary
Aleutian Island Cooperative	Voluntary	Voluntary
Alternative Crab Exchange (ACE)	Binding	No explicit adoption
Coastal Villages Crab Cooperative	Voluntary	No explicit adoption
Crab Producers And Harvesters LLC	No explicit adoption	No explicit adoption
Dog Boat Cooperative	Voluntary	Voluntary
Independent Crabber's Cooperative	No explicit adoption	No explicit adoption
Inter-Cooperative Exchange (ICE)	Binding	Voluntary; with mandatory reporting to third party
R & B Cooperative	No explicit adoption	Internal lease rate reductions
Trident Affiliated Crab Harvesting Cooperative	No explicit adoption	No explicit adoption

Research Design



Methods

- Participant Population: 2012 BSAI crab participants
 - 892 total possible, 787 successfully contacted
 - Quota shareholders, vessel owners, skippers, crewmembers, CDQ groups, and cooperative representatives

Participant type	Total number of records in original data	Number of unique entities	Total unique entities with correct contact info
Quota shareholders	528	343	340
Vessel owners	77	75	75
Skippers	116	114	112
Crew	581	581	475
Community Development Quota representatives	6	6	6
Expert respondents	-	13	13
Total*	1121	892	787

*The totals represent the unique population in the crab fisheries. Due to overlap between the participant categories, the total population size is smaller than the sum of each category's population.

Interview Topic List

1. Background

- Cooperative membership and experience in the crab and other fisheries
- Plans for continuing in crab fisheries
- Knowledge of voluntary measures

2. Quota shares

- Interest in purchasing quota shares
- Perceptions of benefits and hurdles to purchasing, existing access to quota shares
- Experience with financing quota share purchases
- Familiarity with ROFO program; perceived success of program
- Best way to get information to crewmembers

3. Active participation

- Perceived trends in quota share owner demographics
- Relationship between quota shareholders and vessel owners/skippers
- Defining active participation

4. Lease rates

- Awareness and perceived effectiveness, effects of, and long-term viability of voluntary lease rate caps

5. Future of the fisheries

- Opportunities and challenges for crew to move up and new entrants
- Anticipation of changes

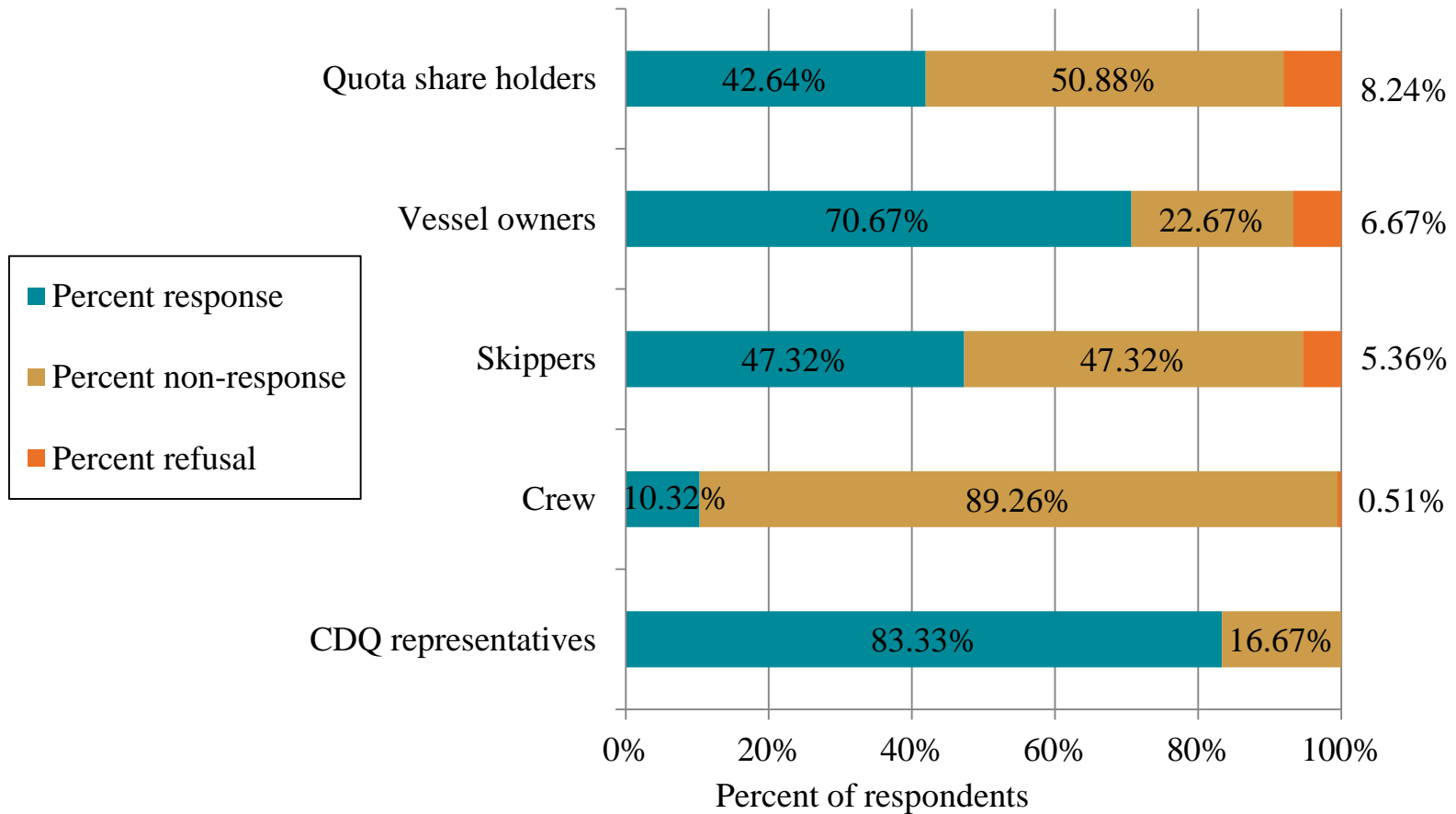


Methods

- 220 people interviewed in 207 semi-structured interviews
 - 81.7% on phone, 17.8% in person
 - 6 group interviews

	Number of unique participants	Number of unique participants successfully contacted	Number of responses	Number of non-responses	Number of refusals	Response count used to determine coding frequency
Quota share holders	343	340	139	173	28	135
Vessel owners	75	75	53	17	5	52
Skippers	115	112	53	53	6	52
Crew	581	475	49	424	2	48
Community Development Quota group representatives	6	6	5	1	0	5
Expert respondents	-	-	13	-	-	10
Total***	963	851	220	581	32	

Response Rates



Overall response rate = 25.9% (N = 220)

Response rate excluding crew = 45.1% (N = 171)

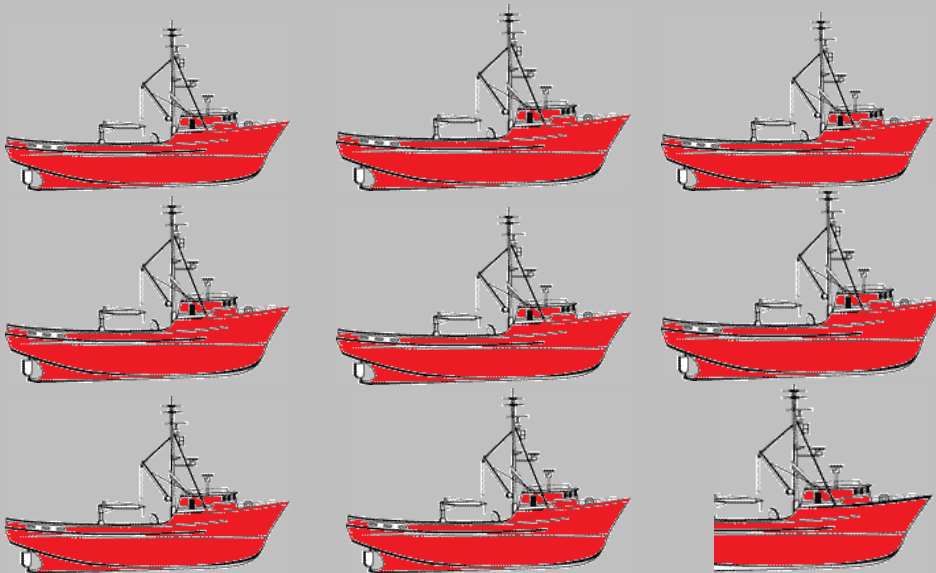
Refusal rate = 3.8% (N = 32)

Crewmember coverage = 31.4% of 2012 active vessels (N = 27)

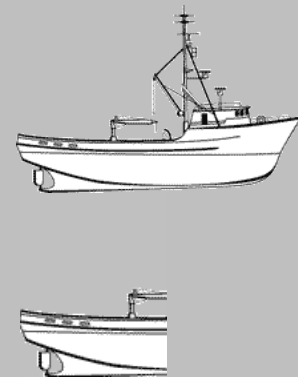
2012 Active Vessel Response

At least one person from 87.2% of 2012 active vessels was interviewed

RESPONSE
(N = 76 vessels)



NON-RESPONSE
(N = 12 vessels)



Post-stratification of fishery participant categories

High-level participant groupings	Total Number of Responses	Low-level participant groupings	Number of Responses	% of total responses in high level grouping
Quota shareholder	139	Passive quota shareholder	67	48.20%
		Quota shareholder and vessel owner	29	20.86%
		Quota shareholder and owner/operator	20	14.39%
		Quota shareholder and skipper	20	14.39%
		Other ¹	3	2.16%
Vessel owner	53	Quota shareholder and vessel owner	29	54.72%
		Quota shareholder and owner/operator	20	37.74%
		Other ¹	4	7.55%
Skipper	53	Non-quota shareholding skipper	13	24.53%
		Quota shareholder and skipper	20	37.74%
		Quota shareholder and owner/operator	20	37.74%
Crew	49	Crew	46	93.88%
		Other	3	6.12%

Unit non-response bias analysis

Goal: To determine measurable bias in interviewed population

- Assess differences between respondent and non-respondent populations using known information about all participants from external variables
-

Quota shareholders

Vessel owners

Skippers

Crewmembers

Unit non-response bias analysis

- Quota shareholders:

- Two sample t-tests (equal variances)
- Pearson's chi-squared
- Logistic regression

Variables:

- Size of quota share holdings ($p = 0.01$)
- Initial allocation recipient or not ($p = 0.26$)

- Vessel owners:

- Two sample t-tests (equal variances)

Variables:

- 2012 gross ex-vessel revenue ($p = 0.55$)
- Mean gross ex-vessel revenue 2005-2012 ($p = 0.44$)

Unit non-response bias analysis

- **Skippers:**

- Two sample t-tests (equal variances)
- Spearman's rank correlation coefficient
- Logistic regression
- Pairwise correlation

- **Variables:**

- Quartiles of 2012 median vessel revenue ($p = 0.044$)
- Number of years active in fishery post-rationalization ($p = 0.07$)
- Ratio of captain pay to ex-vessel revenue ($p = 0.303$)
- Ratio of leased pounds to total pounds landed ($p = 0.261$)

- **Logistic regression:**

- Number of years active in fishery post-rationalization ($p = 0.085$)
- Ratio of leased pounds to total pounds landed ($p = 0.099$)
- Ratio of captain pay to ex-vessel revenue ($p = 0.481$)
- Quartile 1 ($p = 0.137$)
- Quartile 2 ($p = 0.056$)
- Quartile 3 ($p = 0.011$)
- *Pseudo $R^2 = 0.1135$*

- **Pairwise correlation:**

- Captain pay ratio and leased pounds ratio negatively correlated (0.452) ($p = 0.001$)

Unit non-response bias analysis

- Crew:

- Two sample t-tests (equal variances)
- Spearman's rank correlation coefficient
- Logistic regression
- Pairwise correlation

- Variables:

- Number of years active in fishery post-rationalization ($p = 0.27$)
- Ratio of crew pay to ex-vessel revenue ($p = 0.051$)
- Ratio of leased pounds to total pounds landed ($p = 0.091$)
- Quartiles of 2012 median vessel revenue ($p = 0.945$)

- Logistic regression:

- Dummy variable for 3rd quartile ($p = 0.029$)
- Pseudo $R^2 = 0.0337$

- Pairwise correlation:

- Crew pay ratio and leased pounds ratio negatively correlated (0.507) ($p = 0.001$)



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Interpretation of results

- Interviews were coded to determine frequency at which certain themes or topics were mentioned by individual participants
- Response frequencies reflect presence, cannot be used to infer meaning from absence of codes
- For example: 82% of social scientists said they like to eat fish
 - Remaining 18% did not express a preference or opinion about fish



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Results & Discussion

- Access to quota shares
- Active participation
- Leasing

Key Findings: Access to quota shares

- Moderate familiarity with ROFO
 - Majority of skippers (n = 43, 90%) were familiar with ROFO
 - Skippers with quota shares were more likely to be familiar with ROFO than skippers without quota shares (18 versus 8)
 - Most found the process to be straightforward
 - A few skippers had looked into ROFO or signed up for notifications (n = 9, 17.3%)
 - Interviewees suggested packaging ROFO information with ADF&G crew license application to increase publicity to crew

		QS holder	Vessel owner	Skipper	Crew	CDQ reps	Expert respondent
N		135	52	52	48	5	10
Familiarity with ROFO	Familiar with ROFO	86 (63.7%)	40 (76.9%)	43 (82.7%)	13 (27.1%)	5 (100.0%)	3 (30.0%)
	Not familiar with ROFO	11 (8.1%)	3 (5.8%)	5 (9.6%)	30 (62.5%)	0 (0.0%)	0 (0.0%)
	Signed up for ROFO	9 (6.7%)	4 (7.7%)	9 (17.3%)	1 (2.1%)	0 (0.0%)	0 (0.0%)
Experience with and evaluation of ROFO	ROFO didn't negatively affect process of buying or selling quota	9 (6.7%)	4 (7.7%)	3 (5.8%)	0 (0.0%)	0 (0.0%)	1 (10.0%)
	Process buying quota through ROFO was straightforward	4 (3.0%)	1 (1.9%)	4 (7.7%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	ROFO appears to be working	14 (10.4%)	9 (17.3%)	5 (9.6%)	1 (2.1%)	1 (20.0%)	2 (20.0%)
	ROFO was good idea, not sure how it's working	22 (16.3%)	7 (13.5%)	10 (19.2%)	1 (2.1%)	1 (20.0%)	0 (0.0%)
	ROFO is not a good solution to problem	6 (4.4%)	3 (5.8%)	5 (9.6%)	2 (4.2%)	0 (0.0%)	0 (0.0%)

Key Findings: Access to quota shares

- Quota purchases by skippers
 - Many haven't bought quota due to personal considerations and perceived barriers to purchase
 - Price of quota shares (n = 34, 65% of skippers; n = 33, 64% of vessel owners)
 - Length of time to pay off investment (n = 15, 29% of skippers)
 - Perceived lack of availability of shares (n = 26, 50% of skippers)
 - Lack of an open market (11, 23% of skippers)

		QS holder	Vessel owner	Skipper	Crew	CDQ reps	Expert respondent
N		135	52	52	48	5	10
Availability of quota	Lack of quota available	45 (33.3%)	20 (38.5%)	26 (50.0%)	18 (37.5%)	2 (40.0%)	2 (20.0%)
	Differences in market power of participants	53 (39.3%)	23 (44.2%)	24 (46.2%)	13 (27.1%)	1 (20.0%)	2 (20.0%)
	CDQ groups have greater market power than others	38 (28.1%)	17 (32.7%)	19 (36.5%)	9 (18.8%)	1 (20.0%)	1 (10.0%)
Barriers to purchasing quota shares	Crew financial well-being	25 (18.5%)	13 (25.0%)	11 (21.2%)	1 (2.1%)	1 (20.0%)	3 (30.0%)
	Lack of open market for quota	18 (13.3%)	8 (15.4%)	12 (23.1%)	9 (18.8%)	0 (0.0%)	1 (10.0%)
	Quota price	59 (43.7%)	33 (63.5%)	34 (65.4%)	35 (72.9%)	1 (20.0%)	2 (20.0%)
	Age and life on deck	11 (8.1%)	6 (11.5%)	8 (15.4%)	5 (10.4%)	0 (0.0%)	0 (0.0%)
	Complexity and stress of program	9 (6.7%)	6 (11.5%)	1 (1.9%)	3 (6.3%)	0 (0.0%)	1 (10.0%)
	Length of time to pay off investment	17 (12.6%)	8 (15.4%)	15 (28.8%)	9 (18.8%)	0 (0.0%)	2 (20.0%)
	Other investments that make better sense	7 (5.2%)	3 (5.8%)	3 (5.8%)	7 (14.6%)	0 (0.0%)	0 (0.0%)
Unsure of long-term commitment to fishing	8 (5.9%)	3 (5.8%)	5 (9.6%)	10 (20.8%)	0 (0.0%)	1 (10.0%)	

Key Findings: Active Participation

Split opinions on additional active participation requirements

- Opposing additional formal requirements for quota ownership
 - Vessel owners (n = 19, 37%) and QS holders (n = 37, 27%)
 - *Concerns about negatively impacting initial allocation recipients*

		Quota shareholder	Vessel owner	Skipper	All crew	CDQ reps	Expert respondents
N		135	52	52	48	5	10
Fishery does not need additional active participation requirements	Fishery does not need additional active participation requirements	37 (27.4%)	19 (36.5%)	6 (11.5%)	5 (10.4%)	1 (20.0%)	1 (10.0%)
	Additional active participation requirements would negatively impact initial recipients	16 (11.9%)	9 (17.3%)	4 (7.7%)	1 (2.1%)	0 (0.0%)	0 (0.0%)

Key Findings: Active Participation

- Perceived need for formal active participation requirements
 - 52 quota shareholders (39%)
 - 20 vessel owners (25%)
 - 34 skippers (65%)

Perception of unequal risk sharing between passive QS holders and vessel owners/skippers/crew

		Quota shareholder	Vessel owner	Skipper	All crew	CDQ reps	Expert respondents
N		135	52	52	48	5	10
Fishery needs additional active participation definition	Fishery needs additional active participation requirements	52 (38.5%)	20 (38.5%)	34 (65.4%)	25 (52.1%)	2 (20.0%)	1 (20.0%)
	Absentee ownership in fishery is an issue	20 (14.8%)	8 (15.4%)	19 (36.5%)	17 (35.4%)	1 (10.0%)	1 (20.0%)
	Unequal risk sharing with QS holders	26 (19.3%)	13 (25.0%)	16 (30.8%)	3 (6.3%)	2 (20.0%)	0 (0.0%)
Potential active participation requirement components	Vessel ownership requirement	9 (6.7%)	2 (3.8%)	2 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Passive QS holders should not be allowed to purchase more quota	5 (3.7%)	2 (3.8%)	5 (9.6%)	5 (10.4%)	1 (10.0%)	0 (0.0%)
	Quota shouldn't be passed down to non-active family members	7 (5.2%)	2 (3.8%)	5 (9.6%)	7 (14.6%)	0 (0.0%)	0 (0.0%)
	Boots on deck	17 (12.6%)	7 (13.5%)	14 (26.9%)	9 (18.8%)	2 (20.0%)	0 (0.0%)

Key Findings: Leasing

- Most interviewees familiar with lease rate cap
- Mixed reviews on compliance with voluntary lease rate cap related to the perceived goal of 100% compliance
 - 100% compliance with voluntary lease rate caps
 - QS holders (n = 39, 29%)
 - CDQ reps (n = 2, 40%)
 - Less than majority in compliance with voluntary lease rate caps
 - Vessel owners (n = 21, 40%)
 - Skippers (n = 27, 52%)

Result: Mixed perceptions are causing confusion and mistrust

Leasing

		Quota shareholder	Vessel owner	Skipper	All crew	CDQ reps	Expert respondents
N		135	52	52	48	5	10
Knowledge of voluntary lease rate cap	Familiar with voluntary lease rate cap	62 (45.9%)	30 (57.7%)	31 (59.6%)	9 (18.8%)	3 (10.0%)	1 (60.0%)
	Not familiar with voluntary lease rate cap	11 (8.1%)	4 (7.7%)	6 (11.5%)	22 (45.8%)	0 (0.0%)	0 (0.0%)
Experience with voluntary lease rate cap	Full compliance with voluntary lease rate cap	39 (28.9%)	17 (32.7%)	12 (23.1%)	4 (8.3%)	2 (0.0%)	0 (40.0%)
	Majority in compliance with voluntary lease rate cap	15 (11.1%)	8 (15.4%)	7 (13.5%)	1 (2.1%)	0 (0.0%)	0 (0.0%)
	Less than full compliance with voluntary lease rate cap	36 (26.7%)	21 (40.4%)	27 (51.9%)	10 (20.8%)	1 (0.0%)	0 (20.0%)
	Voluntary lease rate caps won't solve the problem	20 (14.8%)	10 (19.2%)	19 (36.5%)	17 (35.4%)	1 (0.0%)	0 (20.0%)
	Marketplace should regulate lease rate	10 (7.4%)	7 (13.5%)	1 (1.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Key Findings: Leasing

- Pejorative perceptions of the leasing market common
 - Negative views of market drivers (e.g., competition, differential market power)
 - Negative views of voluntary lease rate caps
 - Perceptions of rent-seeking behavior of passive QS holders

		Quota shareholder	Vessel owner	Skipper	All crew	CDQ reps	Expert respondents
N		135	52	52	48	5	10
Factors affecting lease prices	Competition among vessel owners for additional quota	40 (29.6%)	23 (44.2%)	26 (50.0%)	11 (22.9%)	0 (0.0%)	0 (0.0%)
	Marginal gains from leased quota	12 (8.9%)	10 (19.2%)	9 (17.3%)	3 (6.3%)	0 (0.0%)	1 (10.0%)
	Rent seeking of quota shareholders	20 (14.8%)	14 (26.9%)	11 (21.2%)	5 (10.4%)	0 (0.0%)	0 (0.0%)
Leasing practices	Relationships play an important role in leasing decisions	12 (8.9%)	8 (15.4%)	2 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Has heard that some owners lease crab they own wholly back to the boat	19 (14.1%)	8 (15.4%)	15 (28.8%)	21 (43.8%)	0 (0.0%)	1 (10.0%)
	Owner pays crew straight up on some quota	30 (22.2%)	17 (32.7%)	21 (40.4%)	20 (41.7%)	0 (0.0%)	0 (0.0%)
	Newer crew less likely to see lease rates as a problem	4 (3.0%)	1 (1.9%)	3 (5.8%)	8 (16.7%)	0 (0.0%)	0 (0.0%)

Discussion

- **Access to quota shares**
 - Interviewees suggest packaging information about ROFO with ADF&G crew licensing
 - ROFO use is likely limited by perceptions of quota price barrier and uncertainty about long-term commitment to the fishery
- **Active participation**
 - Persons against additional active participation requirements concerned with effects on initial issues
 - Persons with a role on an active vessel tended to see a need for an additional active participation requirement for QS ownership – e.g., vessel ownership
 - Some concerns center around perceptions of unequal risk sharing in leasing arrangements
- **Leasing**
 - Interviewees unclear on goal of voluntary lease rate cap; questioned effectiveness of voluntary lease rate caps based on lack of 100% compliance
 - Favor market self-regulation
 - Perceive current incentives for compliance with caps are not robust enough
 - 2013 EDR data show lease rates of 64 to 66% for BBR and 46 to 54% for BSS



2013 EDR data

Fishery	Quota type	Average lease rate (Percent of ex-vessel mean)	Voluntary cap
BBR	CDQ + ACA	0.65%	65%
	CVC + CPC	0.66%	
	CVO A	0.64%	
	CVO B + CPO	0.65%	
BSS	CDQ + ACA	0.54%	50%
	CVC + CPC	0.46%	
	CVO A	0.46%	
	CVO B + CPO	0.47%	



Next steps

- **Set-up logistic regression of results**
 - Explanatory variables:
 - Participant category
 - Non-response bias analysis variables
 - Response variables:
 - Coding frequency counts

Questions?

Contact: Dr. Amber Himes-Cornell

* Email: amber.himes@noaa.gov * Phone: (206) 526-4221 *

