

NOAA
FISHERIES

SEFSC
Social Science
Research Group

The Economics of the Gulf of Mexico Reef Fish Fishery

Including a comparison to the economics of the SAT snapper-grouper fishery

February 2024
Tampa, FL

Annual Economic Reports



NOAA FISHERIES

Stylized Cash Flow Statement (period of time)

Incoming/Receipts

Outgoing/Payments

From operations

- RF fish revenue
- Other commercial fishing revenue

Non-operating

- Other income

Variable cost

- Fuel
- Crew (hired)
- Other (supplies)

Fixed cost

- Vessel/gear related
- Overhead
- Loan payments

Net cash flow (+)



Stylized Income Statement (period of time)

Revenue	Expenditures
<u>From operations</u> <ul style="list-style-type: none">• RF fish revenue• Other commercial fishing revenue	<u>From operations</u> <ul style="list-style-type: none">• Fuel• Crew (hired)• Other (supplies)• Owner's labor• Vessel/gear related• Overhead• Depreciation
	Net revenue from operations
<u>Non-operating</u> <ul style="list-style-type: none">• Other income	<u>Non-operating</u> <ul style="list-style-type: none">• Interest payments
	Profit



Stylized Balance Sheet (point in time)

Assets	Liabilities
Vessel and Gear (market value)	Loans (outstanding amount)
	Equity



Survey Questionnaires

Trip Logbooks (since 1993)

- SE Coastal Fisheries Vessels Logbook for:

- Gulf of Mexico Reef Fish
- South Atlantic Snapper-Grouper
- King and Spanish Mackerel
- Shark
- Atlantic Dolphin/Wahoo

- Assume: Census

Signature: _____	Phone No.: () -	Schedule No. <i>NMFS Use Only</i>
Vessel Name: _____	Trip Start Date: MM DD YY	County or Parish: _____ State: _____
Vessel No.: _____	Trip Unload Date: MM DD YY	Dealer Name: _____
Operator Name: _____	Days at Sea: _____	SE Federal Dealer Number: _____
Operator Number: _____	No. of Crew: _____	State Trip Ticket No.: _____
(if known)		Check box if landings sold to multiple dealers: <input type="checkbox"/> Yes

GEAR SECTION: See Instructions on Page 2. Check gear box and fill in all the boxes below.

Traps (T) <input type="checkbox"/> Fish <input type="checkbox"/> Other	Longline(L) <input type="checkbox"/> Bottom <input type="checkbox"/> Other	PLL <input type="checkbox"/> Other	Gill Net (GN) <input type="checkbox"/> Drift <input type="checkbox"/> Anchor <input type="checkbox"/> Strike <input type="checkbox"/> Other	Hook & Line <input type="checkbox"/> (H) <input type="checkbox"/> (E) <input type="checkbox"/> (TR) <input type="checkbox"/> (B)	Divers <input type="checkbox"/> (S) <input type="checkbox"/> (P)	Other Gear (O)
Total # Trap Hauls	# Sets	# Sets	# Lines	# of Divers	Spear Power	Type
# Traps Used	# Hooks per Line	Length (yards)	# Hooks per Line	Total Hrs Fished		Total Hrs Fished
Trap Soak Time (hrs)	Set Soak Time (hrs)	Depth (yards)	Total Hrs Fished	SE VTR #: R		
Total Soak Time (hrs)	Total Soak Time (hrs)	Set Soak Time (hrs)	Date Received: _____			
Mesh: _____	Length (miles)	Mesh: _____	NMFS use only			

CATCH SECTION: See Instructions on Page 3.

Weight- Record POUNDS kept gutted or whole (DO NOT include fractions of pounds).
 Gear- Record gear used for MAJORITY of catch as T, L, GN, H, E, TR, B, S, P or O. (Do not use multiple gears).
 Area- Areas can be found on maps in logbook (page 6). Do not use state area codes.
 Depth- Record bottom depth where the MAJORITY of fish were caught in FEET.

Species Name	Code	Gutted-lbs	Whole-lbs	Gear	Area	Depth	Species Name	Code	Gutted-lbs	Whole-lbs	Gear	Area	Depth
Amberjack-Great	1812	#	#				P Jolthead	3312	#	#			
Amberjack-Lesser	1815	#	#				O Knobbed	3308	#	#			
Almaco	1810	#	#				R Red	3302	#	#			
Banded Rudder	1817	#	#				G Y Whitebone	3306	#	#			

Sample Trip-level Economics (since 2002/5)

- Stratified sample of permitted **vessels** at start of year
- Supposed to report econ data for ALL logbook trips:

TRIP EXPENSE SECTION:		MANDATORY FOR SELECTED VESSELS.				See Instructions on Pages 3-4.			
Owner Operated?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Gallons of Fuel Used on This Trip	<input type="text"/>	Price per Gallon \$	<input type="text"/>	Bait Expense \$	<input type="text"/>	Ice Expense \$	<input type="text"/>
Grocery Expense	\$ <input type="text"/>	Misc. Trip Expenses	\$ <input type="text"/>	IFQ Allocation Purchased for This Trip	\$ <input type="text"/>	Total Trip Revenue	\$ <input type="text"/>	Total Payment to HIRED Crew and Captain	\$ <input type="text"/>
Has the payment for your catch been determined?	Yes <input type="checkbox"/> No <input type="checkbox"/>								

Supplemental Annual Cost Survey

- Same sample vessels
- Sent after the year is over
- Fixed costs
- Many activities:
 - Logbook fisheries
 - Other seafood
 - Charter fishing
 - Other business

OMB Control No. 0648-0016 Expiration Date: 09/30/2019

2016 Survey of Annual Expenses for Snapper-Grouper, Reef Fish, Dolphin-Wahoo, Shark and Mackerel Permit Holders

Vessel Name: <VESSEL> Vessel ID: <VESSEL_ID>

Please report **financial expenses** (actual dollar payments) paid in 2016 for this vessel across all fisheries and activities. Enter "0" if you did not have any expenses in a category.
PLEASE DO NOT LEAVE BLANK!

ACTIVITY REPORT FOR THIS VESSEL IN 2016

1. Vessel INACTIVE all year: No Yes (if Vessel was inactive all year, you can skip to Q9)

Please enter the number of days spent away from port and the total gross revenues generated by this vessel for the following activities in 2016:

2. Commercial fishing/seafood sales: days \$.

3. Chartering/for-hire fishing: days \$.

4. Vessel active but NOT fishing: days \$.

TOTAL TRIP-RELATED EXPENSES FOR THIS VESSEL IN 2016

5. Total paid for fuel: \$.

6. Total paid for other trip-related expenses: (bait, ice, groceries, oil, lubricants, tackle, etc.) \$.

7. Total paid for IFQ allocation transferred FROM another IFQ account: \$.

8. (a) Did the vessel employ HIRED crew and/or HIRED captains? Yes No (go to Q9)

(b) Total paid to HIRED crew and HIRED captain(s) of this vessel: (Not to Owner! For example: from IRS Form(s) 1099-MISC or equivalent) \$.

TOTAL ANNUAL EXPENSES FOR THIS VESSEL IN 2016

9. (a) Total paid for any vessel maintenance, repair, replacement, new purchase or upgrade (include hull, engine, gear, electronics, etc.) \$.

(b) Does the amount in Question 10. (a) include a haul-out? Yes No

10. (a) Vessel insurance in 2016 (please check all that apply): None Hull P&I

(b) Total paid for vessel insurance in 2016 (insurance premium): \$.

11. Total loan payments for this vessel in 2016: \$.

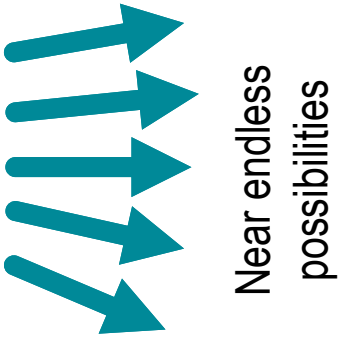
12. Overhead applicable to this vessel such as dockage, professional services, licenses, (share of) rent, utilities, office and vehicle expenses, etc. (Please exclude: insurance and loan payments, depreciation and income taxes.) \$.

13. Please estimate the current market value of this vessel and its associated gear and equipment (do NOT include IFQ quota share): \$.

Census vs. Post-stratified SOI vs. Econ Sample

Overall logbooks (census) and econ sample

	Vessels	Trips
All Logbooks	1,770	36,962
Econ-Sample	373	8,312



SOI – Gulf Red Snapper

	Vessels	Trips
All Logbooks	402	3,783
Econ-Sample	92	751



SOI – SE Lionfish

	Vessels	Trips
All Logbooks	49	310
Econ-Sample	10	81

Final Product – 6 pages by SOI



Page 1:

SOI: 2016 GOM Reef Fish FMP Fishery: All Gears

Description: This SOI consists of all logbook trips by permitted vessels where at least one pound of fish managed by the GOM Reef Fish FMP was landed in 2016 using any gear type. Species managed include multiple species of snapper, grouper, tilefish, and jacks as well as triggerfish and hogfish. For a complete list of the species, please refer to Appendix 1. For important disclaimer, see page 14.

Trip-Level Summary

Effort

Trips	6,918
Vessels	512
Days at Sea	30,550
Crew Days	89,035

Landings (guttled lbs)

Total	15,645,434
SOI	14,950,969
Non-SOI	694,465
% SOI	96%

Percent by Gear

Trips	SOI lbs	
Vertical Line	82%	65%
Longline	12%	34%
Diver	5%	1%
Other	1%	0.7%

Price (mean)

Total	\$3.96
SOI	\$4.07
Non-SOI	\$1.69

Revenue

Total	\$62,020,750
SOI	\$60,844,287
Non-SOI	\$1,176,463
% SOI	98%

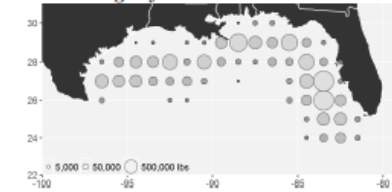
Percent of Revenue by Species Group

Shallow Water Groupers	37%
Shallow Water Snappers	3%
Mid-Shelf Snappers	48%
Deep Water Groupers/Tilefish	8%
Grunts/Porgies/Triggerfish	1%
Mackerels/Dolphinfish/Jacks	2%
Other Species	0.4%

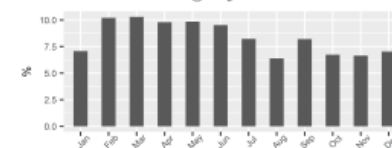
Revenue for Top 5 Species

Red Snapper	\$25,617,136
Red Grouper	\$16,727,197
Gag Grouper	\$4,485,711
Vermilion Snapper	\$4,107,852
Yellowedge Grouper	\$3,270,940

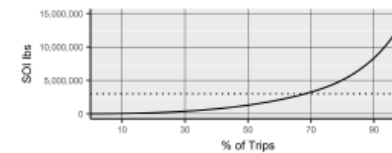
SOI Landings by Area Fished



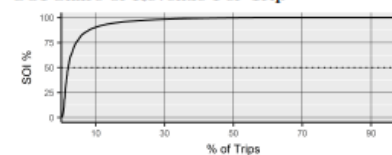
Share of SOI Landings by Month



Cumulative SOI Landings



SOI Share of Revenue Per Trip



Trip Descriptive Statistics (N=6,918)

	Mean	Min	Median	Max
Days at Sea	4.4	1	3	23
Crew Size	2.8	1	3	10
Landings	2,262	2	1,070	23,770
Revenue	\$8,965	\$6	\$3,630	\$97,814
SOI	\$8,795	\$3	\$3,436	\$95,972
% SOI	96%	0.1%	99.8%	100%

Page 2:

SOI: 2016 GOM Reef Fish FMP Fishery: All Gears

Trip-Level Economics

Response Rate for SOI Trips

	Trips	%SOI	%Selected	%Responded
SOI	6,918	-	-	-
Selected	2,065	30%	-	-
Responded	2,048	30%	99%	-
Used	1,948	28%	94%	95%

Economic Results (n=1,948)

SOI Trip	Mean	SE	90% L.B.	90% U.B.	Median
Owner-Operated	68%	3.5	63%	74%	-
Days at Sea	4.4	0.2	4.1	4.8	3
Crew Size	2.7	0.1	2.6	2.8	3
Fuel Used	179	11	160	198	125
Landings (guttled lbs)	2,043	169	1,763	2,322	943
Total Revenue	8,406	757	7,153	9,660	3,180
Cost					
Fuel	365	21	330	401	258
Bait	303	31	252	353	110
Ice	143	14	120	165	84
Groceries	262	21	227	297	120
Miscellaneous	250	34	193	306	50
Hired Crew	2,277	247	1,868	2,686	750
IFQ Purchase	1,550	236	1,160	1,940	96
OC Owner-Captain Time	630	101	462	798	100
Trip Net Cash Flow	3,257	402	2,592	3,922	970
Trip Net Revenue	4,177	442	3,446	4,909	955

Trip Net Cash Flow and Trip Net Revenue as Proportion of Trip Revenue (Margins)

Revenue 100%	Trip Net Cash Flow 39%	Trip Net Revenue 50%
	IFQ Purchase 18%	Labor - Hired & Owner 35%
	Labor - Hired 27%	
	Fuel & Supplies 16%	Fuel & Supplies 16%

Input Prices

Fuel Price (average): \$2.04 per gallon Hired Crew Wage (implicit): \$251 per crew-day

Productivity Measures

Landings/Fuel Use: 11.4 lbs/gallon Landings/Labor Use: 169 lbs/crew-day



Page 3:

SOI: 2016 GOM Reef Fish FMP Fishery: All Gears

Annual, Vessel-Level Summary

Effort				
Vessels	512			
<u>Trips - Total</u>	8,369			
SOI Trips	6,918			
Non-SOI Trips	1,451			
Days at Sea	32,947			
Crew Days	93,956			
Landings (guttled lbs)				
<u>Total</u>	16,957,132			
SOI	14,950,969			
Non-SOI	2,006,163			
% SOI	88%			
Percent by Gear	Trips	Total lbs		
Vertical Line	79%	64%		
Longline	10%	31%		
Diver	6%	1%		
Other	5%	4%		
Price (mean)				
<u>Total</u>	\$3.84			
SOI	\$4.07			
Non-SOI	\$2.14			
Revenue				
<u>Total</u>	\$65,138,736			
SOI	\$60,844,287			
Non-SOI	\$4,294,449			
% SOI	93%			
Percent of Revenue by Species Group				
Shallow Water Groupers	35%			
Shallow Water Snappers	4%			
Mid-Shelf Snappers	46%			
Deep Water Groupers/Tilefish	8%			
Grunts/Porgies/Triggerfish	1%			
Mackerels/Dolphinfish/Jacks	4%			
Other Species	0.6%			
Revenue for Top 5 Species				
Red Snapper	\$25,641,191			
Red Grouper	\$16,767,027			
Gag Grouper	\$4,509,635			
Vermilion Snapper	\$4,129,328			
Yellowedge Grouper	\$3,279,727			
Annual, Vessel Descriptive Statistics (N=512)				
	Mean	Min	Median	Max
Trips	16.3	1	13	117
Days at Sea	64.3	1	48	245
Crew Days	183.5	1	112	1,470
Landings	33,119	15	14,519	448,815
Revenue	\$127,224	\$64	\$55,152	\$2,182,950
SOI	\$118,836	\$25	\$39,598	\$2,152,496
% SOI	90.3%	0%	98.5%	100%
GOM Reef Fish	100%			
SAT Snapper & Grouper - Unlimited	7%			
SAT Snapper & Grouper - Limited	0.6%			
King Mackerel	42%			
Spanish Mackerel	46%			
Dolphin-Wahoo	36%			
Other Commercial Fishing	18%			
For-Hire Fishing	23%			
	Mean	Min	Median	Max
Length	38	14	37	69
Year Built	1987	1961	1985	2016
Horsepower	422	12	350	2,000
Fiberglass Hull	93%	-	-	-
Diesel Engine	79%	-	-	-
Ice Refrigeration	97%	-	-	-

Page 4:

SOI: 2016 GOM Reef Fish FMP Fishery: All Gears

Annual, Vessel-Level Economics

Response Rate for SOI Vessels

	Vessels	%SOI	%Selected	%Responded
SOI	512	-	-	-
Selected	147	29%	-	-
Responded	130	25%	88%	-
Used	121	24%	82%	93%

Economic Results (n=121)

SOI Vessel	Mean	SE	90% L.B.	90% U.B.	Median
Owner-Operated	78%	3.4	73%	84%	-
For-Hire Active	16%	3.1	11%	21%	-
Days - Commercial Fishing	74	3.8	68	81	55
Days - For-Hire Fishing	10	3	5	15	0
Days - Non-fishing	2	0.4	1	3	0
Vessel Value	85,688	6,327	75,199	96,177	70,000
Has Insurance	38%	4	31%	44%	-
Total Revenue	132,167	16,043	105,572	158,762	76,255
Commercial Fishing	120,155	15,483	94,488	145,822	62,551
For-Hire Fishing	12,012	3,625	6,003	18,021	0
Cost					
Fuel	8,907	832	7,528	10,287	5,968
Other Supplies	14,263	1,152	12,354	16,172	7,410
Hired Crew	32,336	3,942	25,801	38,871	11,000
Vessel Repair & Maintenance	11,271	1,066	9,504	13,039	7,500
Insurance	1,347	200	1,015	1,679	0
Overhead	6,800	749	5,558	8,042	3,600
Loan Payment	1,689	495	869	2,509	0
IFQ Purchase	18,432	2,943	13,553	23,311	1,679
OC Owner-Captain Time	8,825	1,100	7,002	10,648	3,028
Depreciation	4,284	316	3,760	4,809	3,500
Net Cash Flow	37,121	11,023	18,849	55,394	12,292
Net Revenue from Operations*	44,133	11,340	25,333	62,932	9,197

Net Cash Flow and Net Revenue from Operations* as Proportion of Vessel Revenue (Margins)

Revenue 100%	Net Cash Flow 28%	Net Revenue - Operations 33%
	IFQ Purchase 14%	Depreciation 3%
	Loan Payment 1%	Fixed Costs 15%
	Fixed Costs 15%	Labor - Hired & Owner 31%
	Labor - Hired 24%	Fuel & Supplies 18%
	Fuel & Supplies 18%	

Economic Return* (on Vessel Asset Value): 51.5%

* Accruing to vessel owner AND IFQ shareholder. See Definitions.



Page 5:

SOI: 2016 GOM Reef Fish FMP Fishery: All Gears				
Trip-Level Time Series				
Trip-Level Summary				
	2014	2015	2016	Average
Effort				
Trips	6,536	6,800	6,918	6,751
Vessels	532	522	512	522
Days at Sea	30,530	30,480	30,550	30,520
Landings (guttled lbs)				
Total	16,063,839	16,125,290	15,645,434	15,944,854
SOI	15,182,555	15,396,849	14,950,969	15,176,791
Non-SOI	881,284	728,441	694,465	768,063
% SOI	95%	95%	96%	95%
Price (mean)				
Total	\$3.84	\$3.96	\$3.96	\$3.92
SOI	\$3.96	\$4.06	\$4.07	\$4.03
Non-SOI	\$1.64	\$1.73	\$1.69	\$1.69
Revenue				
Total	\$61,643,467	\$63,819,320	\$62,020,750	\$62,494,512
SOI	\$60,197,872	\$62,555,309	\$60,844,287	\$61,199,156
Non-SOI	\$1,445,596	\$1,264,012	\$1,176,463	\$1,295,357
% SOI	98%	98%	98%	98%
Trip-Level Economics				
	2014	2015	2016	Average
Number of Observations	1,237	1,787	1,948	
Response Rate (%)	78%	85%	94%	
SOI Trip				
Owner-Operated	73%	66%	68%	69%
Fuel Used per Day at Sea (gallons/day)	46	45	40	44
Total Revenue	100%	100%	100%	100%
Costs (% of Revenue)				
Fuel	6.8%	4.9%	4.3%	5.3%
Bait	3.1%	3.4%	3.6%	3.4%
Ice	1.4%	1.5%	1.7%	1.5%
Groceries	2.4%	2.4%	3.1%	2.6%
Miscellaneous	2.5%	2.4%	3%	2.6%
Hired Crew	28.2%	25.9%	27.1%	27.1%
IFQ Purchase	14.7%	26.5%	18.4%	19.9%
OC Owner-Captain Time	6.5%	6.3%	7.5%	6.8%
Trip Net Cash Flow	41%	33%	39%	38%
Trip Net Revenue	49%	53%	50%	51%
Labor - Hired & Owner	35%	32%	35%	34%
Fuel & Supplies	16%	15%	16%	16%
Input Prices				
Fuel Price (per gallon)	\$3.53	\$2.53	\$2.04	\$2.70
Hire Crew Wage (per crew-day)	\$330	\$279	\$251	\$287
Productivity Measures				
Landings/Fuel Use (lbs/gallon)	13.3	12.6	11.4	12
Landings/Labor Use (lbs/crew-day)	221	203	169	198

Page 6:

SOI: 2016 GOM Reef Fish FMP Fishery: All Gears				
Annual, Vessel-Level Time Series				
Annual, Vessel-Level Summary				
	2014	2015	2016	Average
Effort				
Vessels	532	522	512	522
Trips - Total	8,015	7,954	8,369	8,113
SOI Trips	6,536	6,800	6,918	6,751
Non-SOI Trips	1,479	1,154	1,451	1,361
Days at Sea	32,899	32,570	32,947	32,805
Landings (guttled lbs)				
Total	17,206,189	17,162,505	16,957,132	17,108,609
SOI	15,182,555	15,396,849	14,950,969	15,176,791
Non-SOI	2,023,634	1,765,656	2,006,163	1,931,818
% SOI	88%	90%	88%	89%
Revenue				
Total	\$64,566,340	\$66,370,950	\$65,138,736	\$65,358,675
SOI	\$60,197,872	\$62,555,309	\$60,844,287	\$61,199,156
Non-SOI	\$4,368,468	\$3,815,641	\$4,294,449	\$4,159,519
% SOI	93%	94%	93%	93%
Vessel Characteristics				
Length	39	38	38	38
Year Built	1987	1987	1987	1987
For-Hire Fishing Permit	24%	24%	23%	24%
Annual, Vessel-Level Economics				
	2014	2015	2016	Average
Number of Observations	84	105	121	
Response Rate (%)	62%	75%	82%	
SOI Vessel				
Owner-Operated	78%	70%	78%	75%
For-Hire Active	9%	17%	16%	14%
Vessel Value	\$120,445	\$100,318	\$85,688	\$102,150
Total Revenue	100%	100%	100%	100%
Costs (% of Revenue)				
Fuel	8.4%	6.1%	6.7%	7.1%
Other Supplies	9.7%	9.4%	10.8%	10%
Hired Crew	26.9%	25.3%	24.5%	25.6%
Vessel Repair & Maintenance	7.8%	6.9%	8.5%	7.7%
Insurance	1.1%	0.8%	1%	1%
Overhead	5.6%	5.5%	5.1%	5.4%
Loan Payment	1%	1.4%	1.3%	1.2%
IFQ Purchase	11.2%	24.2%	13.9%	16.4%
OC Owner-Captain Time	5.6%	5.5%	6.7%	5.9%
Net Cash Flow	29%	21%	28%	26%
Net Revenue for Operations*	31%	38%	33%	34%
Depreciation	3.7%	3%	3.2%	3.3%
Fixed Costs	14%	13%	15%	14%
Labor - Hired & Owner	32%	31%	31%	31%
Fuel & Supplies	18%	15%	18%	17%
Economic Return* (on asset value)	42.5%	61.7%	51.5%	51.9%



Reef Fish Fishery - 2018



NOAA FISHERIES

SOIs in the Report

1. GOM Reef Fish FMP Fishery: All Gears

SOIs based on gear perspective

2. GOM Reef Fish FMP Fishery: Vertical Line
3. GOM Reef Fish FMP Fishery: Longline
4. GOM Reef Fish FMP Fishery: Diver

SOIs based on management-approach perspective

5. GOM IFQ Fishery: All Gears
6. GOM Trips w/o IFQ Catch Fishery: All Gears

SOI based on species or species group perspective

7. GOM IFQ Red Snapper Fishery: All Gears
8. GOM IFQ Grouper-Tilefish Fishery: All Gears
9. GOM IFQ Red Grouper Fishery: All Gears
10. GOM IFQ Gag Grouper Fishery: All Gears
11. GOM IFQ OSWG Fishery: All Gears
12. GOM IFQ DWG Fishery: All Gears
13. GOM IFQ Tilefish Fishery: All Gears
14. GOM Vermilion Snapper Fishery: All Gears
15. GOM Yellowtail Snapper Fishery: All Gears
16. GOM FMP Jacks Fishery: All Gears



Trip-Level Summary

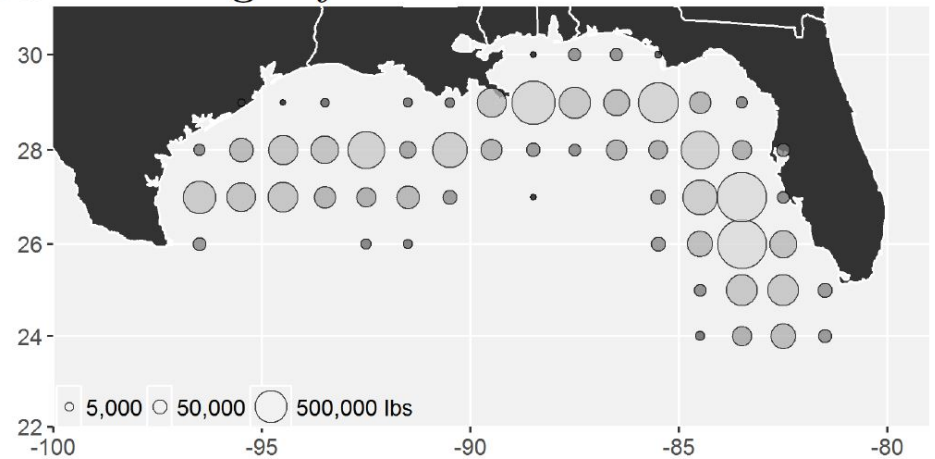
Effort

Trips	5,863
Vessels	525
Days at Sea	25,563
Crew Days	72,586

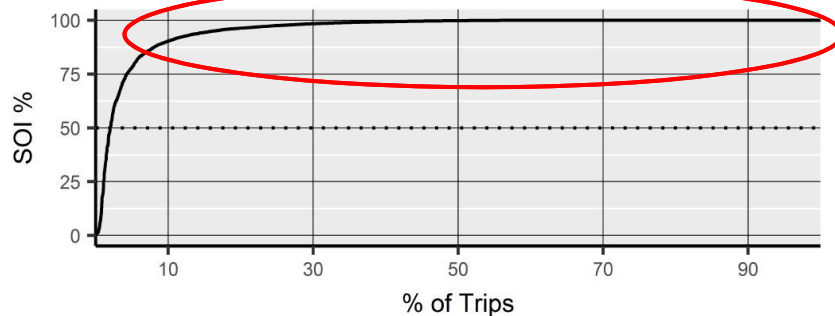
Revenue

Total	\$55,175,756
SOI	\$54,404,287
Non-SOI	\$771,469
% SOI	99%

SOI Landings by Area Fished



SOI Share of Revenue Per Trip



Trip Descriptive Statistics (N=5,863)

	Mean	Min	Median	Max
Days at Sea	4.4	1	3	23
Crew Size	2.8	1	3	10
Landings	2,187	4	1,149	33,752
Revenue	\$9,411	\$25	\$4,318	\$167,058
SOI	\$9,279	\$1	\$4,151	\$167,041
% SOI	97%	0.2%	99.8%	100%

Trip-Level Economics

Response Rate for SOI Trips

	Trips	%SOI	%Selected	%Responded
SOI	5,863	-	-	-
Selected	1,538	26%	-	-
Responded	1,482	25%	96%	-
Used	1,448	25%	94%	98%



Trip-Level Economics, cont.

Economic Results (n=1,448)

	Mean	SE	90% L.B.	90% U.B.	Median
SOI Trip					
Owner-Operated	70%	3.6	64%	75%	-
Days at Sea	4.7	0.3	4.2	5.2	4
Crew Size	2.8	0.1	2.7	2.9	3
Fuel Used	219	17	191	247	150
Landings (gutted lbs)	2,308	193	1,988	2,627	1,233
Total Revenue	10,063	929	8,524	11,601	4,482
Cost					
Fuel	587	44	515	660	407
Bait	390	45	316	465	140
Ice	166	17	138	194	100
Groceries	276	28	229	323	150
Miscellaneous	252	39	188	316	50
Hired Crew	2,400	258	1,972	2,828	896
IFQ Purchase	2,019	307	1,511	2,528	119
OC Owner-Captain Time	714	108	536	893	196
Trip Net Cash Flow*	3,972	543	3,072	4,872	1,608
Trip Net Revenue*	5,277	623	4,245	6,309	1,772



Trip-Level Economics, cont.

Trip Net Cash Flow* and Trip Net Revenue* as Proportion of Trip Revenue (Margins)

Revenue 100%	Trip Net Cash Flow* 39%	Trip Net Revenue* 52%
	IFQ Purchase 20%	
	Labor - Hired 24%	Labor - Hired & Owner 31%
	Fuel & Supplies 17%	Fuel & Supplies 17%

Input Prices

Fuel Price (average): \$2.68 per gallon

Hired Crew Wage (implicit): \$244 per crew-day

Productivity Measures

Landings/Fuel Use: 10.5 lbs/gallon

Landings/Labor Use: 176 lbs/crew-day



Time Series – Trip-Level Economics

	2014	2015	2016	2017	2018	Average
Number of Observations	1,237	1,787	1,955	1,943	1,448	
Response Rate (%)	78%	85%	94%	95%	94%	
SOI Trip						
Owner-Operated	73%	65%	68%	61%	70%	67.4%
Fuel Used per Day at Sea (gallons/day)	46	46	40	49	46	45
Total Revenue	100%	100%	100%	100%	100%	100%
Costs (% of Revenue)						
Fuel	6.8%	4.9%	4.3%	5.1%	5.8%	5.4%
Bait	3.1%	3.4%	3.6%	4.1%	3.9%	3.6%
Ice	1.4%	1.5%	1.7%	1.6%	1.6%	1.6%
Groceries	2.4%	2.4%	3.1%	3.2%	2.7%	2.8%
Miscellaneous	2.5%	2.4%	3%	2.5%	2.5%	2.6%
Hired Crew	28.2%	25.9%	27%	27.6%	23.8%	26.5%
IFQ Purchase	14.6%	26.5%	18.5%	19.1%	20.1%	19.8%
OC Owner-Captain Time	6.5%	6.2%	7.4%	6.4%	7.1%	6.7%
Trip Net Cash Flow*	41%	33%	38.8%	36.8%	39%	37.7%
Trip Net Revenue*	49.2%	53.2%	49.8%	49.5%	52%	50.7%
Labor - Hired & Owner	34.7%	32.1%	34.4%	33.9%	31%	33.2%
Fuel & Supplies	16.1%	14.7%	15.7%	16.6%	17%	16%
Input Prices						
Fuel Price (per gallon)	\$3.67	\$2.64	\$2.13	\$2.34	\$2.68	\$2.69
Hire Crew Wage (per crew-day)	\$343	\$291	\$261	\$297	\$244	\$287
Productivity Measures						
Landings/Fuel Use (lbs/gallon)	13.3	12.6	11.4	10.7	10.5	12
Landings/Labor Use (lbs/crew-day)	221	204	169	196	176	193

Annual, Vessel-Level Summary

Effort

Vessels	525
<u>Trips - Total</u>	<u>6,866</u>
SOI Trips	5,863
Non-SOI Trips	1,003

Revenue

<u>Total</u>	<u>\$57,292,456</u>
SOI	\$54,404,287
Non-SOI	\$2,888,169
% SOI	95%

Percent with Federal Permit

GOM Reef Fish	100%
SAT Snapper & Grouper - Unlimited	5%
SAT Snapper & Grouper - Limited	0.6%
King Mackerel	37%
Spanish Mackerel	46%
Dolphin-Wahoo	38%
Other Commercial Fishing	17%
For-Hire Fishing	26%

Annual, Vessel Descriptive Statistics (N=525)

	Mean	Min	Median	Max
Trips	13.1	1	10	163
Days at Sea	51.6	1	32	225
Crew Days	144.5	1	76	927
Landings	25,847	39	9,883	403,969
Revenue	\$109,128	\$198	\$40,679	\$2,066,649
SOI	\$103,627	\$99	\$37,023	\$2,061,600
% SOI	92.7%	0.6%	99%	100%

Vessel Characteristics (N=525)

	Mean	Min	Median	Max
Length	39	14	37	69
Year Built	1989	1961	1986	2018
Horsepower	451	12	400	1,800
Fiberglass Hull	93%	-	-	-
Diesel Engine	76%	-	-	-
Ice Refrigeration	94%	-	-	-



Annual, Vessel-Level Economics

Response Rate for SOI Vessels

	Vessels	%SOI	%Selected	%Responded
SOI	525	-	-	-
Selected	139	26%	-	-
Responded	114	22%	82%	-
Used	110	21%	79%	96%

Annual, Vessel-Level Economics, cont.

Economic Results (n=110)

	Mean	SE	90% L.B.	90% U.B.	Median
SOI Vessel					
Owner-Operated	70%	4	63%	76%	-
For-Hire Active	15%	3.1	10%	21%	-
Days - Commercial Fishing	61	3.8	54	67	41
Days - For-Hire Fishing	12	3.1	7	17	0
Days - Non-fishing	1	0.3	0	2	0
Vessel Value	107,356	9,578	91,465	123,246	80,000
Has Insurance	34%	4.1	28%	41%	-
Total Revenue	122,959	13,857	99,970	145,949	78,000
Commercial Fishing	111,961	13,560	89,465	134,458	50,064
For-Hire Fishing	10,998	2,943	6,115	15,880	0
Cost					
Fuel	9,942	850	8,531	11,353	7,834
Other Supplies	14,465	1,762	11,543	17,388	6,911
Hired Crew	28,740	4,128	21,891	35,590	6,800
Vessel Repair & Maintenance	13,083	1,589	10,446	15,720	7,057
Insurance	1,367	230	985	1,749	0
Overhead	5,941	842	4,545	7,337	3,000
Loan Payment	1,686	365	1,080	2,292	0
IFQ Purchase	18,495	3,584	12,549	24,442	1,500
OC Owner-Captain Time	8,086	1,057	6,333	9,839	1,764
Depreciation	5,368	479	4,573	6,162	4,000
Net Cash Flow	29,240	8,516	15,111	43,368	5,260
Net Revenue from Operations**	35,967	9,120	20,836	51,098	5,416



Annual, Vessel-Level Economics, cont.

Net Cash Flow and Net Revenue from Operations** as Proportion of Vessel Revenue (Margins)

Revenue 100%	Net Cash Flow 24%	Net Revenue - Operations 29%
	IFQ Purchase 15%	Depreciation 4%
	Loan Payment 1%	Vessel R&M, Insur, Overh 17%
	Vessel R&M, Insur, Overh 17%	Labor - Hired & Owner 30%
	Labor - Hired 23%	Fuel & Supplies 20%
	Fuel & Supplies 20%	

Economic Return** (on Vessel Asset Value): 33.5%

** Accruing to vessel owner AND IFQ shareholder. See Definitions.

Time Series – Annual, Vessel-Level Economics

	2014	2015	2016	2017	2018	Average
Number of Observations	84	105	121	132	110	
Response Rate (%)	62%	75%	82%	78%	79%	
SOI Vessel						
Owner-Operated	78%	69%	78%	65%	70%	72%
For-Hire Active	9%	17%	16%	22%	15%	16%
Vessel Value	\$125,554	\$106,703	\$89,381	\$113,690	\$107,356	\$108,537
Total Revenue	100%	100%	100%	100%	100%	100%
Costs (% of Revenue)						
Fuel	8.4%	6.1%	6.7%	6.8%	8.1%	7.2%
Other Supplies	9.6%	9.4%	10.8%	11%	11.8%	10.5%
Hired Crew	26.9%	25.3%	24.5%	25.3%	23.4%	25.1%
Vessel Repair & Maintenance	7.7%	6.9%	8.5%	11.2%	10.6%	9%
Insurance	1.1%	0.8%	1%	1.2%	1.1%	1%
Overhead	5.6%	5.5%	5.1%	6.5%	4.8%	5.5%
Loan Payment	1%	1.4%	1.3%	1.3%	1.4%	1.3%
IFQ Purchase	11.1%	24.1%	14%	10.6%	15%	15%
OC Owner-Captain Time	5.6%	5.4%	6.6%	5.5%	6.6%	5.9%
Net Cash Flow	28.6%	20.6%	28.1%	26%	24%	25.5%
Net Revenue for Operations**	31.4%	37.6%	33.5%	28.4%	29%	32%
Depreciation	3.7%	3.1%	3.2%	4%	4.4%	3.7%
Vessel R&M, Insur, Overh	14.3%	13.2%	14.7%	18.9%	17%	15.6%
Labor - Hired & Owner	32.6%	30.7%	31.1%	30.9%	30%	31.1%
Fuel & Supplies	18%	15.4%	17.5%	17.9%	20%	17.8%
Economic Return** (on asset value)	42.1%	60.2%	51.8%	35.8%	33.5%	44.7%



Comparison with Snapper Grouper Fishery



Page 1:

SOI: 2016 SAT Snapper-Grouper FMP Fishery: All Gears

Description: This SOI consists of all logbook trips by permitted vessels where at least one pound of fish managed by the SAT Snapper-Grouper FMP was landed in 2016 using any gear type. Species managed include multiple species of snapper, grouper, tilefish, etc. For a complete list of the species, please refer to Appendix 2. For important **disclaimer**, see page 15.

Trip-Level Summary

Effort	
Trips	11,386
Vessels	509
Days at Sea	18,878
Crew Days	40,565

Landings (gutted lbs)	
Total	5,680,861
SOI	5,101,373
Non-SOI	579,488
% SOI	90%

Percent by Gear		Trips	SOI lbs
Vertical Line	85%	84%	
Longline	3%	9%	
Diver	7%	4%	
Traps/Pots	2%	2%	
Other	4%	1%	

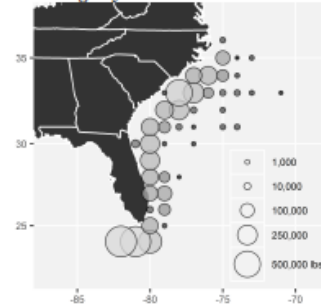
Price (mean)	
Total	\$3.31
SOI	\$3.37
Non-SOI	\$2.75

Revenue	
Total	\$18,789,938
SOI	\$17,197,008
Non-SOI	\$1,592,930
% SOI	92%

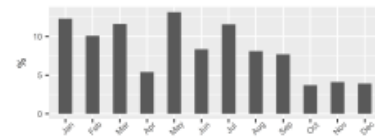
Percent of Revenue by Species Group	
Shallow Water Groupers	12%
Shallow Water Snappers	28%
Mid-Shelf Snappers	16%
Deep Water Groupers/Tilefish	18%
Grunt/Porgy/Sea Bass/Trigger	10%
Mackerels/Dolphinfish/Jacks	10%
Other Species	5%

Revenue for Top 5 Species	
Yellowtail Snapper	\$4,649,998
Vermilion Snapper	\$2,828,743
Tilefish	\$2,259,007
Greater Amberjack	\$1,193,133
Gag Grouper	\$1,174,131

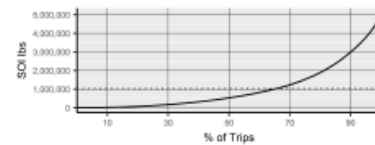
SOI Landings by Area Fished



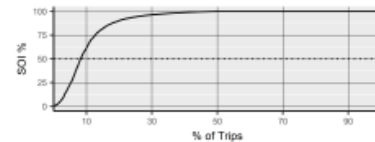
Share of SOI Landings by Month



Cumulative SOI Landings



SOI Share of Revenue Per Trip



Trip Descriptive Statistics (N=11,386)

	Mean	Min	Median	Max
Days at Sea	1.7	1	1	17
Crew Size	2	1	2	8
Landings	499	2	256	7,867
Revenue	\$1,650	\$8	\$868	\$28,370
SOI	\$1,510	\$1	\$772	\$26,308
% SOI	90%	0.1%	100%	100%

Page 2:

SOI: 2016 SAT Snapper-Grouper FMP Fishery: All Gears

Trip-Level Economics

Response Rate for SOI Trips

	Trips	%SOI	%Selected	%Responded
SOI	11,386	-	-	-
Selected	2,766	24%	-	-
Responded	2,711	24%	98%	-
Used	2,612	23%	94%	96%

Economic Results (n=2,612)

SOI Trip	Mean	SE	90% L.B.	90% U.B.	Median
Owner-Operated	82%	3.1	77%	87%	-
Days at Sea	1.8	0.2	1.5	2.1	1
Crew Size	2	0.1	1.9	2.1	2
Fuel Used	74	7	62	86	50
Landings (gutted lbs)	503	57	408	598	245
Total Revenue	1,761	206	1,420	2,103	938
Cost					
Fuel	165	15	140	189	110
Bait	126	23	88	165	50
Ice	38	5	29	46	16
Groceries	62	10	46	78	20
Miscellaneous	49	16	23	75	10
Hired Crew	517	84	377	657	160
IFQ Purchase	0	0	0	0	0
OC Owner-Captain Time	299	35	241	358	150
Trip Net Cash Flow*	805	86	661	948	410
Trip Net Revenue*	505	74	383	628	169

Trip Net Cash Flow* and Trip Net Revenue* as Proportion of Trip Revenue (Margins)

Revenue 100%	Trip Net Cash Flow* 46%	Trip Net Revenue* 29%
	Labor - Hired 29%	Labor - Hired & Owner 46%
	Fuel & Supplies 25%	Fuel & Supplies 25%

Input Prices

Fuel Price (average): \$2.22 per gallon Hired Crew Wage (implicit): \$247 per crew-day

Productivity Measures

Landings/Fuel Use: 6.8 lbs/gallon Landings/Labor Use: 141 lbs/crew-day

* See Definitions in Methods Section or Glossary.



Page 3:

SOI: 2016 SAT Snapper-Grouper FMP Fishery: All Gears
Annual, Vessel-Level Summary

Effort		Annual, Vessel Descriptive Statistics (N=509)					
Vessels	509	Mean	Min	Median	Max		
Trips - Total	15,312	Trips	30.1	1	19	234	
SOI Trips	11,386	Days at Sea	46.7	1	31	234	
Non-SOI Trips	3,926	Crew Days	96.5	1	61	545	
Days at Sea	23,772	Landings	16,105	10	6,966	210,425	
Crew Days	49,117	Revenue	\$46,197	\$34	\$21,886	\$541,023	
		SOI	\$33,786	\$3	\$12,699	\$239,006	
		% SOI	75.9%	0%	92.7%	100%	

Landings (gutted lbs)	
Total	8,197,473
SOI	5,101,373
Non-SOI	3,096,100
% SOI	62%

Percent by Gear		
Vertical Line	Trips	Total lbs
Longline	73%	65%
Diver	4%	12%
Traps/Pots	5%	3%
Other	1%	1%
	17%	19%

Price (mean)	
Total	\$2.87
SOI	\$3.37
Non-SOI	\$2.04

Revenue	
Total	\$23,514,107
SOI	\$17,197,008
Non-SOI	\$6,317,098
% SOI	73%

Percent of Revenue by Species Group	
Shallow Water Groupers	12%
Shallow Water Snappers	24%
Mid-Shelf Snappers	13%
Deep Water Groupers/Tilefish	15%
Grunt/Porgy/Sea Bass/Trigger	8%
Mackerels/Dolphinfish/Jacks	20%
Other Species	8%

Revenue for Top 5 Species	
Yellowtail Snapper	\$4,940,022
Vermilion Snapper	\$2,857,551
Tilefish	\$2,336,490
King and Cero Mackerel	\$2,335,984
Greater Amberjack	\$1,247,716

Vessel Characteristics (N=509)					
	Mean	Min	Median	Max	
Length	33	17	32	70	
Year Built	1990	1954	1988	2016	
Horsepower	400	50	350	1,350	
Fiberglass Hull	98%	-	-	-	
Diesel Engine	65%	-	-	-	
Ice Refrigeration	93%	-	-	-	

SOI Share of Monthly Landings

SOI Share of Revenue Per Vessel

Percent with Federal Permit

GOM Reef Fish	9%
SAT Snapper & Grouper - Unlimited	91%
SAT Snapper & Grouper - Limited	10%
King Mackerel	62%
Spanish Mackerel	70%
Dolphin-Wahoo	93%
Other Commercial Fishing	29%
For-Hire Fishing	28%

Page 4:

SOI: 2016 SAT Snapper-Grouper FMP Fishery: All Gears
Annual, Vessel-Level Economics

Response Rate for SOI Vessels

	Vessels	%SOI	%Selected	%Responded
SOI	509	-	-	-
Selected	132	26%	-	-
Responded	102	20%	77%	-
Used	94	18%	71%	92%

Economic Results (n=94)

SOI Vessel	Mean	SE	90% L.B.	90% U.B.	Median
Owner-Operated	89%	3.4	83%	94%	-
For-Hire Active	12%	3.5	6%	18%	-
Days - Commercial Fishing	80	6.3	70	91	69
Days - For-Hire Fishing	10	2.9	5	15	0
Days - Non-fishing	3	1.1	1	5	0
Vessel Value	93,685	10,395	76,410	110,960	65,000
Has Insurance	45%	5.3	36%	54%	-
Total Revenue	69,373	9,014	54,393	84,352	40,861
Commercial Fishing	57,489	7,194	45,534	69,444	35,631
For-Hire Fishing	11,883	5,442	2,840	20,926	0
Cost					
Fuel	7,037	717	5,845	8,229	4,836
Other Supplies	10,015	1,277	7,892	12,138	5,000
Hired Crew	19,274	2,853	14,534	24,014	6,152
Vessel Repair & Maintenance	10,503	1,766	7,569	13,437	5,152
Insurance	1,478	265	1,037	1,919	0
Overhead	7,100	974	5,482	8,718	3,642
Loan Payment	3,211	1,173	1,261	5,161	0
IFQ Purchase	23	14	-1	46	0
OC Owner-Captain Time	9,052	984	7,417	10,688	3,793
Depreciation	4,684	520	3,820	5,548	3,250
Net Cash Flow	10,733	4,339	3,522	17,944	6,290
Net Revenue from Operations*	230	4,328	-6,963	7,423	-2,775

Net Cash Flow and Net Revenue from Operations* as Proportion of Vessel Revenue (Margins)

Revenue 100%	Net Cash Flow 16%	Net Revenue - Operations 0%
	Loan Payment 5%	Depreciation 7%
	Vessel R&M, Insur, Overh 28%	Vessel R&M, Insur, Overh 28%
	Labor - Hired Crew 28%	Labor - Hired & Owner 41%
	Fuel & Supplies 25%	Fuel & Supplies 25%

Economic Return* (on Vessel Asset Value): 0.2%

* Accruing to vessel owner AND IFQ shareholder. See Definitions.



Page 5:

SOI: 2016 SAT Snapper-Grouper FMP Fishery: All Gears				
Trip-Level Time Series				
Trip-Level Summary				
	2014	2015	2016	Average
Effort				
Trips	12,140	11,036	11,386	11,521
Vessels	527	518	509	518
Days at Sea	20,768	19,357	18,878	19,668
Landings (guttled lbs)				
Total	6,281,668	5,763,319	5,680,861	5,908,616
SOI	5,655,496	5,267,893	5,101,373	5,341,587
Non-SOI	626,172	495,426	579,488	567,029
% SOI	90%	91%	90%	90%
Price (mean)				
Total	\$3.23	\$3.27	\$3.31	\$3.27
SOI	\$3.19	\$3.30	\$3.37	\$3.29
Non-SOI	\$3.46	\$2.97	\$2.75	\$3.06
Revenue				
Total	\$20,235,150	\$18,886,806	\$18,789,938	\$19,303,965
SOI	\$18,065,600	\$17,415,709	\$17,197,008	\$17,559,439
Non-SOI	\$2,169,552	\$1,471,097	\$1,592,930	\$1,744,526
% SOI	89%	92%	92%	91%
Trip-Level Economics				
	2014	2015	2016	Average
Number of Observations	2,962	2,588	2,612	
Response Rate (%)	83%	83%	94%	
SOI Trip				
Owner-Operated	83%	88%	82%	84.3%
Fuel Used per Day at Sea (gallons/day)	33	38	41	37
Total Revenue	100%	100%	100%	100%
Costs (% of Revenue)				
Fuel	13.4%	11.4%	9.3%	11.4%
Bait	6.9%	7.2%	7.2%	7.1%
Ice	1.9%	1.9%	2.1%	2%
Groceries	3.2%	2.8%	3.5%	3.2%
Miscellaneous	2.8%	2.7%	2.8%	2.8%
Hired Crew	32.6%	32.7%	29.4%	31.6%
IFQ Purchase	0%	0%	0%	0%
OC Owner-Captain Time	19.6%	17.8%	17%	18.1%
Trip Net Cash Flow*	39.1%	41.3%	45.7%	42%
Trip Net Revenue*	19.5%	23.5%	28.7%	23.9%
Labor - Hired & Owner	52.2%	50.5%	46.4%	49.7%
Fuel & Supplies	28.3%	25.9%	24.9%	26.4%
Input Prices				
Fuel Price (per gallon)	\$3.68	\$2.87	\$2.22	\$2.92
Hire Crew Wage (per crew-day)	\$268	\$283	\$247	\$266
Productivity Measures				
Landings/Fuel Use (lbs/gallon)	8.7	7.8	6.8	8
Landings/Labor Use (lbs/crew-day)	150	150	141	147

Page 6:

SOI: 2016 SAT Snapper-Grouper FMP Fishery: All Gears				
Annual, Vessel-Level Time Series				
Annual, Vessel-Level Summary				
	2014	2015	2016	Average
Effort				
Vessels	527	518	509	518
Trips - Total	16,452	14,965	15,312	15,576
SOI Trips	12,140	11,036	11,386	11,521
Non-SOI Trips	4,312	3,929	3,926	4,056
Days at Sea	26,219	24,454	23,772	24,815
Landings (guttled lbs)				
Total	9,044,887	8,262,325	8,197,473	8,501,562
SOI	5,655,496	5,267,893	5,101,373	5,341,587
Non-SOI	3,389,391	2,994,432	3,096,100	3,159,974
% SOI	63%	64%	62%	63%
Revenue				
Total	\$25,363,247	\$23,704,881	\$23,514,107	\$24,194,078
SOI	\$18,065,600	\$17,415,709	\$17,197,008	\$17,559,439
Non-SOI	\$7,297,648	\$6,289,173	\$6,317,098	\$6,634,640
% SOI	71%	73%	73%	72%
Vessel Characteristics				
Length	33	33	33	33
Year Built	1989	1989	1990	1989
For-Hire Fishing Permit	27%	26%	28%	27%
Annual, Vessel-Level Economics				
	2014	2015	2016	Average
Number of Observations	75	101	94	
Response Rate (%)	50%	75%	71%	
SOI Vessel				
Owner-Operated	85%	91%	89%	88%
For-Hire Active	22%	19%	12%	18%
Vessel Value	\$77,267	\$77,428	\$93,685	\$82,793
Total Revenue	100%	100%	100%	100%
Costs (% of Revenue)				
Fuel	15%	11.7%	10.1%	12.3%
Other Supplies	12.1%	12.9%	14.4%	13.1%
Hired Crew	28.4%	23.8%	27.8%	26.7%
Vessel Repair & Maintenance	14.7%	15.7%	15.1%	15.2%
Insurance	1.5%	1.6%	2.1%	1.7%
Overhead	6.8%	8.4%	10.2%	8.5%
Loan Payment	2.5%	3.3%	4.6%	3.5%
IFQ Purchase	0%	0.1%	0%	0%
OC Owner-Captain Time	10.6%	12.8%	13%	12.1%
Net Cash Flow	18.9%	22.4%	15.5%	18.9%
Net Revenue for Operations*	5.6%	7.7%	0.3%	4.5%
Depreciation	5.3%	5.3%	6.8%	5.8%
Vessel R&M, Insur, Overh	23%	25.7%	27.5%	25.4%
Labor - Hired & Owner	39%	36.6%	40.8%	38.8%
Fuel & Supplies	27.1%	24.6%	24.6%	25.4%
Economic Return* (on asset value)	5.4%	7.3%	0.2%	4.3%



Quantifying the impact of different management regimes on two otherwise similar fisheries

SEFSC
Social Science
Research Group

Christopher Liese and Scott Crosson
NOAA Fisheries

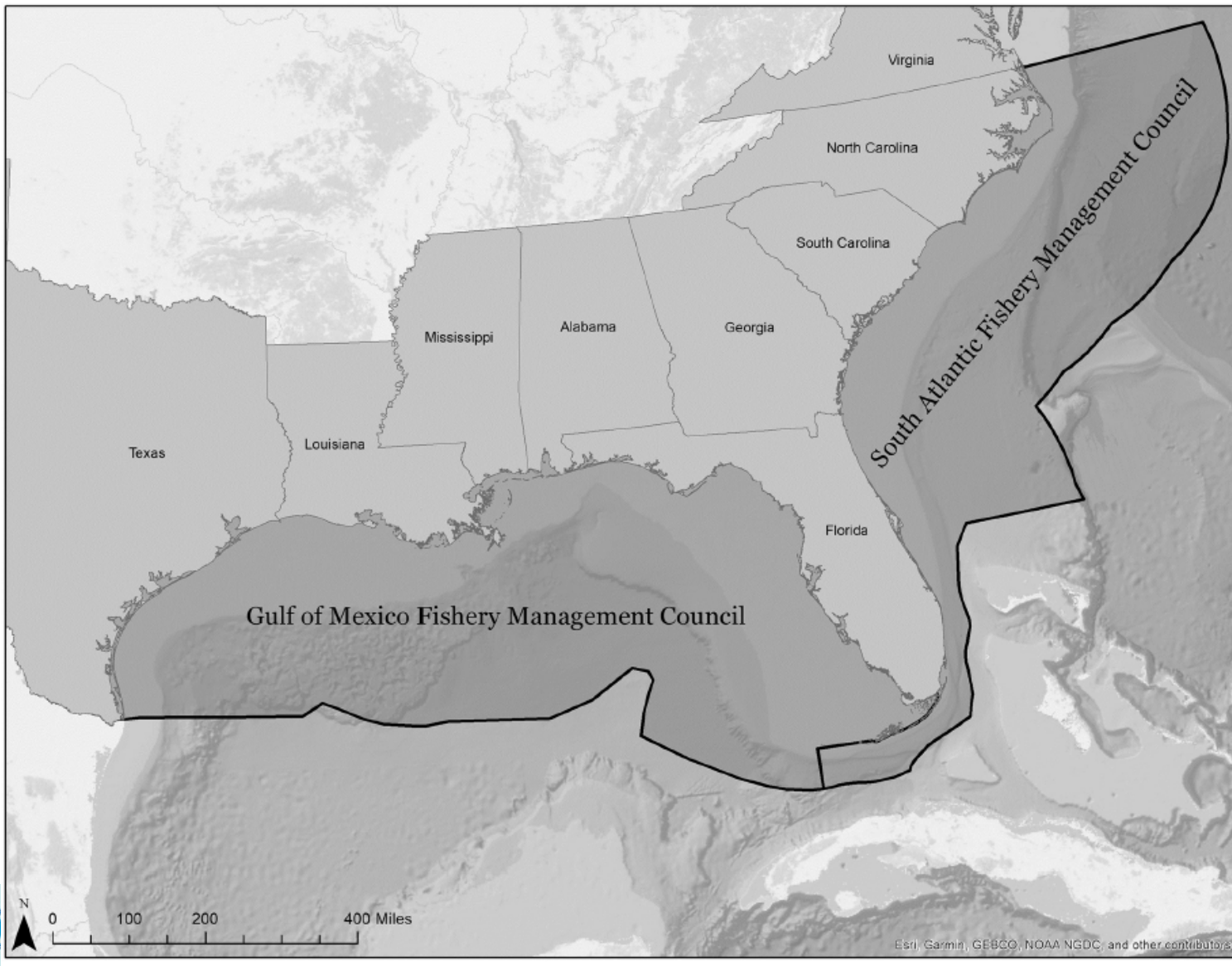


NOAA FISHERIES

Objective

Empirically quantify the effects, especially economic, of the management regime using a comparative analysis

A Economic “Natural Experiment”: US S. Atlantic Snapper & Grouper Fishery (SAT S&G), and Gulf of Mexico Reef Fish Fishery (GOM RF)



S&G and RF management is very different

- Between 2007 and 2010, all the major species in the GOM Reef Fish fishery transitioned into catch share management, effectively creating ITQs.
- The SAT Snapper-Grouper fishery continues to be managed with input control measures.

Economics of the S&G fishery, compared

	SAT SG	GOM RF	SG/RF Ratio	SG/RF Ratio (per lb basis)
SG or RF Fisheries				
Landings	5,341,587	15,176,791	0.35	1.00
Price	3.29	4.03	0.82	
Revenue	17,559,439	61,199,156	0.29	0.82
Trips	11,521	6,751	1.71	4.85
Vessels	518	522	0.99	2.82
Other landings	+11%	+5%		
All Landing on SG or RF Trips				
Landings	5,908,616	15,944,854	0.37	1.05
Revenue	19,303,965	62,494,512	0.31	0.88
Crew days	40,565	89,035	0.46	1.29

Comparison of Trips (2016)

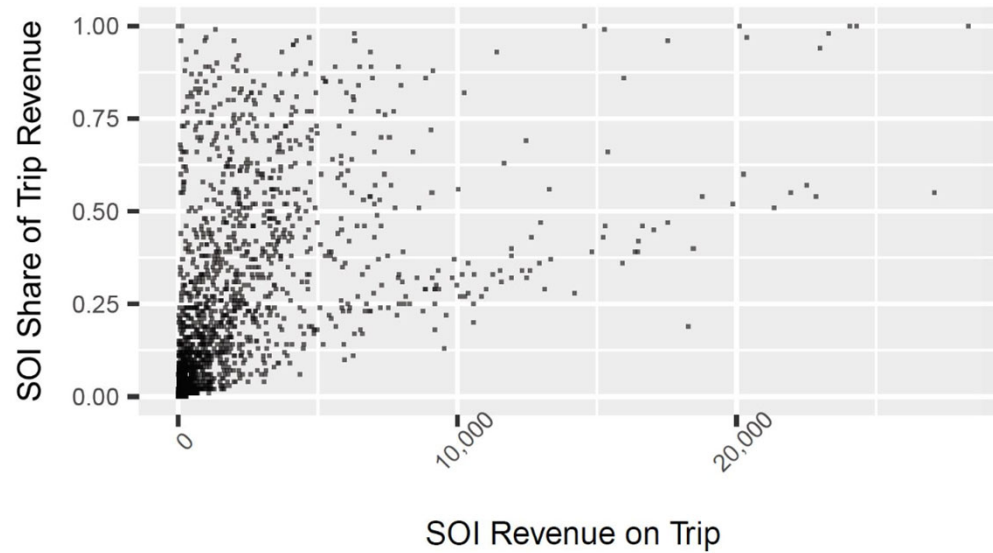
	SAT S&G	GOM RF
Population		
Days at sea	1.7	4.4
Crew size	2.0	2.8
Landings (lbs)	499	2,262
% of Landings in Fishery	90%	96%
Survey		
Owner operated	82%	68%
Fuel used (gallons)	74	179
Landings/gallon	6.8	11.4
Landings/crew-day	141	169

Why so many more trips? (trip limits)



Vermilion % of Rev vs. Vermilion Rev on Trip

GOM - Vermilion Snapper

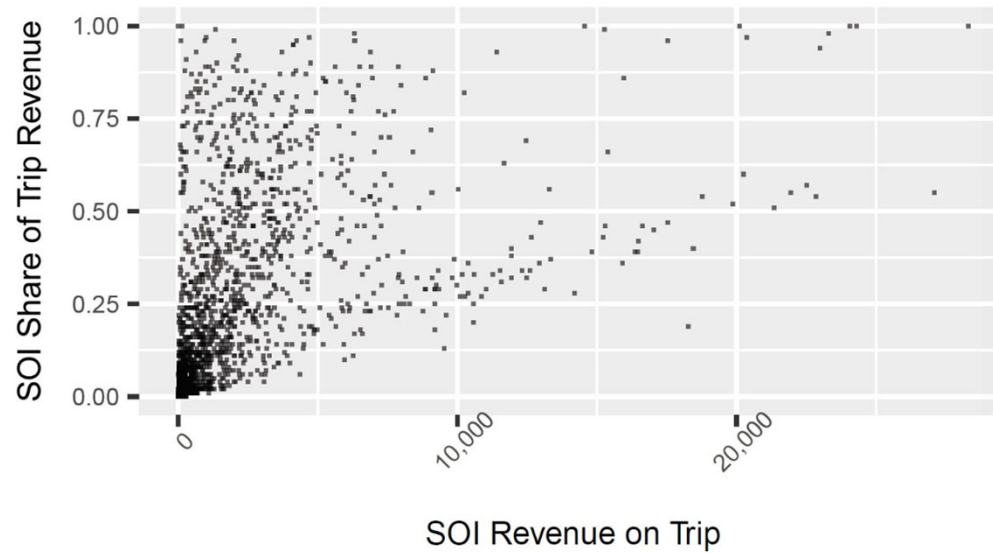


SAT - Vermilion Snapper

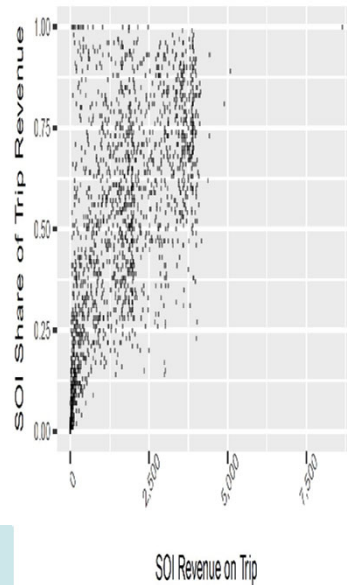


Vermilion % of Rev vs. Vermilion Rev on Trip

GOM - Vermilion
Snapper



SAT - Vermilion
Snapper



FB19-023

FISHERY BULLETIN ISSUE DATE: May 1, 2019

CONTACT: Sustainable Fisheries (727) 824-5305

South Atlantic Vermilion Snapper Commercial Trip Limit Reduced to 555 Pounds Whole Weight on May 6, 2019

WHAT/WHEN:

- The daily trip limit for the commercial harvest of vermillion snapper in federal waters of the South Atlantic is reduced from 1,100 to 555 pounds whole weight or from 1,000 to 500 pounds gutted weight, effective **12:01 a.m., local time, on May 6, 2019.**

WHY THIS TRIP LIMIT REDUCTION IS HAPPENING:

- When commercial landings of South Atlantic vermillion snapper reach or are projected to reach 75 percent of the quota, regulations are in place to reduce the daily trip limit.
- The trip limit reduction is necessary to slow the rate of commercial harvest to avoid exceeding the quota.

AFTER THE TRIP LIMIT REDUCTION:

- The 555-pound whole weight or 500-pound gutted weight trip limit will remain in effect until the end of the current fishing season on June 30, 2019, or when 100 percent of the quota is reached or projected to be reached, whichever occurs first. The second 2019 vermillion snapper season in the South Atlantic will open at 12:01 a.m., local time, on July 1, 2019, with a 1,100-pound whole weight or 1,000-pound gutted weight trip limit.



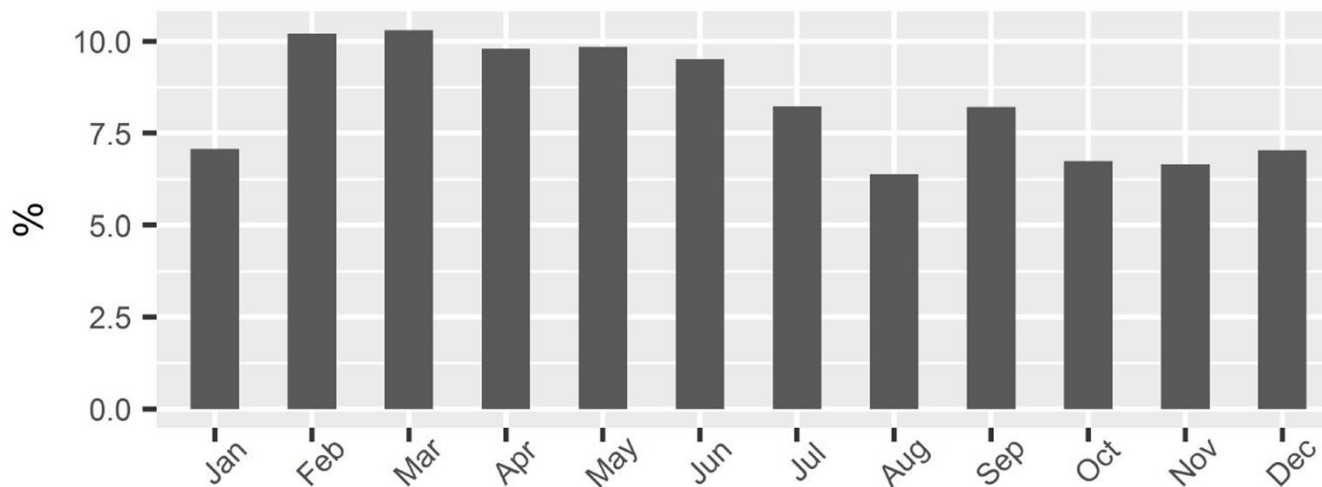
Why so many vessels?

(races to fish due to quota closures)

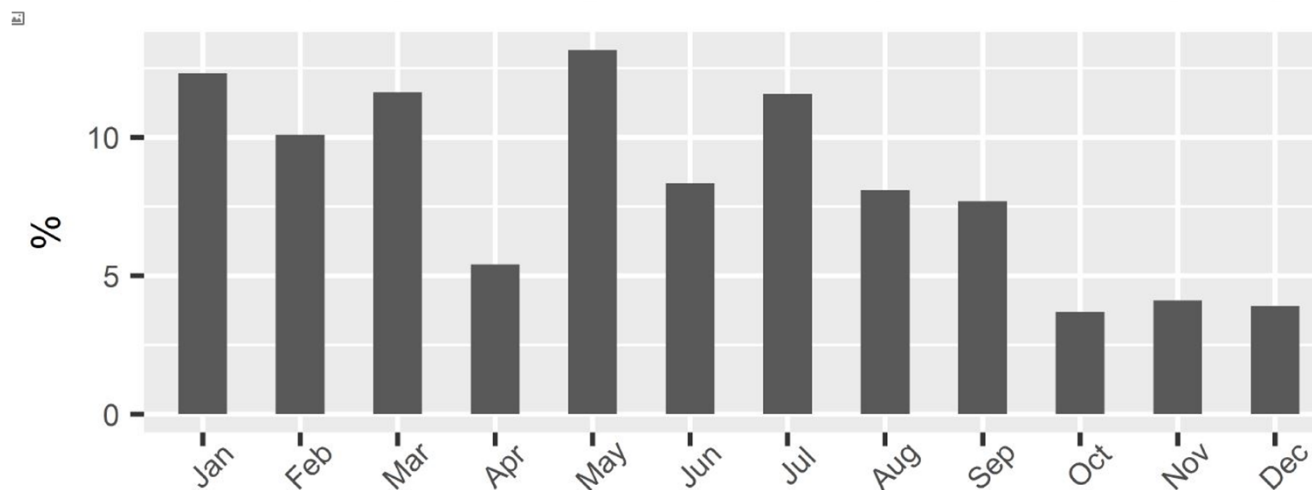


Share of Landings by Month

GOM RF:

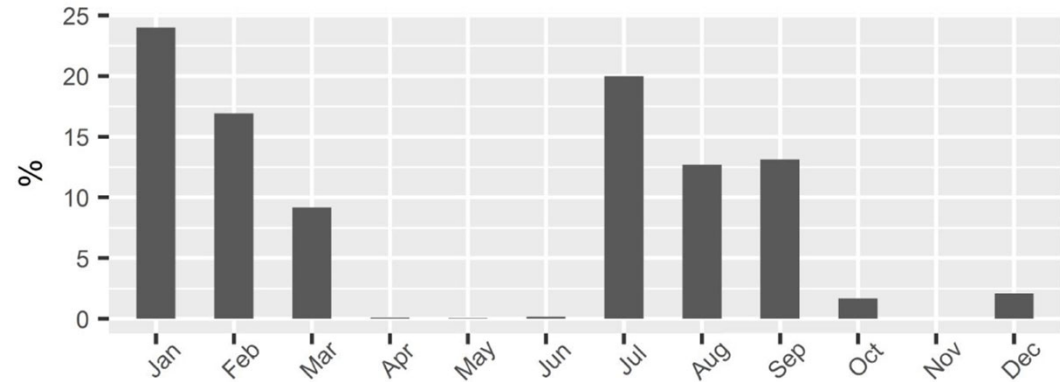


SAT S&G:

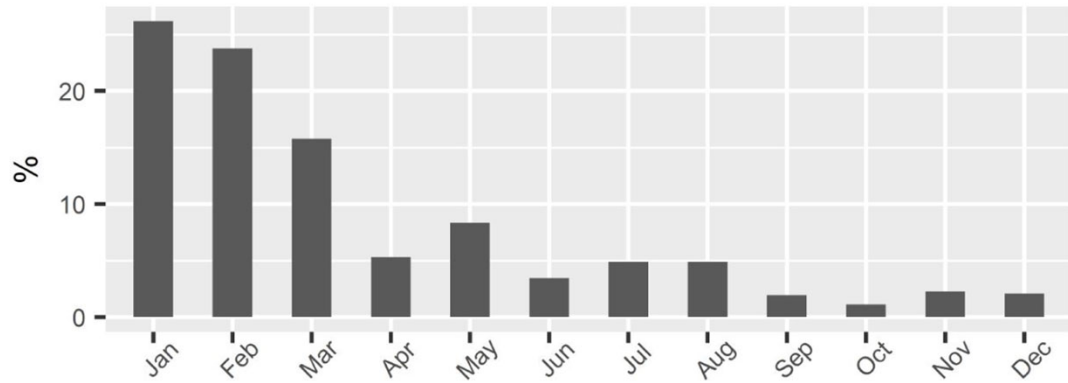


Effect of seasons and quotas

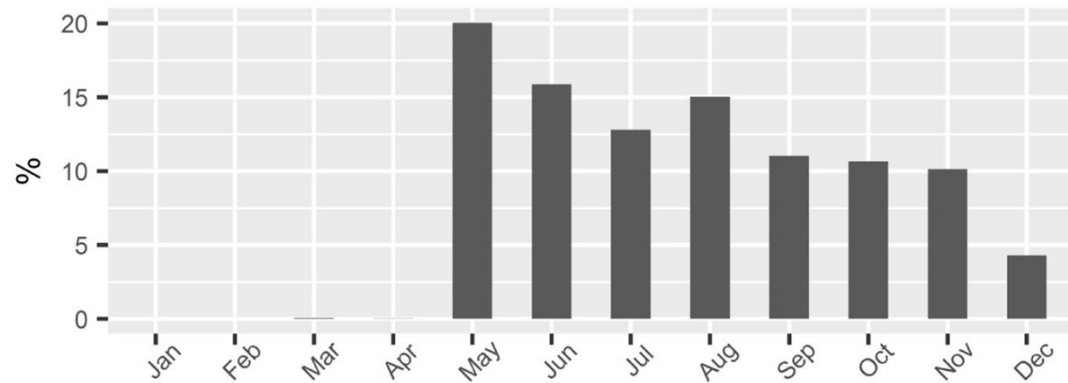
SAT Vermilion Snapper



SAT Deepwater Species



SAT Gag, Scamp, Shallow Groupers



Average trip-level economics in 2016

	SAT SG (n = 2,612)		GOM RF (n = 1,948)	
	Mean	SE	Mean	SE
Owner-operated	82%	3.1	68%	3.5
Days at sea	1.8	0.2	4.4	0.2
Crew size	2.0	0.1	2.7	0.1
Fuel used (gallons)	74	7	179	11
Landings (lbs)	503	57	2,043	169
Revenue (\$)	1,761	206	8,406	757
Costs (\$)				
Fuel	165	15	365	21
Bait	126	23	303	31
Ice	38	5	143	14
Groceries	62	10	262	21
Miscellaneous	49	16	250	34
Hired crew	517	84	2,277	247
Opportunity cost—Owner-captain	299	35	630	101
Trip net revenue (\$)	505	74	4,176	442



Average annual, vessel-level economics in 2016

	SAT SG (n=94)		GOM RF (n=121)	
	Mean	SE	Mean	SE
Owner-operated	89%	3.4	78%	3.4
Days - Commercial fishing	80	6.3	74	3.8
Days - For-hire fishing	10	2.9	10	3.0
Vessel value (\$)	93,685	10,395	85,688	6,327
Has insurance	45%	5.3	38%	4
Total revenue (\$)	69,373	9,014	132,167	16,043
Commercial fishing	57,489	7,194	120,155	15,483
For-hire fishing	11,883	5,442	12,012	3,625
Costs (\$)				
Fuel	7,037	717	8,907	832
Other supplies	10,015	1,277	14,263	1,152
Hired crew	19,274	2,853	32,336	3,942
Vessel repair & maintenance	10,503	1,766	11,271	1,066
Insurance	1,478	265	1,347	200
Overhead	7,100	974	6,800	749
Opportunity cost - Owner	9,052	984	8,825	1,100
Depreciation	4,684	520	4,284	316
Net revenue from operations (\$)	230	4,328	44,133	11,310

2014-2016 and average of economic costs and net revenue as percentage of revenue

	SAT Snapper-Grouper				GOM Reef Fish			
	2014 (n=75)	2015 (n=101)	2016 (n=94)	Mean	2014 (n=84)	2015 (n=105)	2016 (n=121)	Mean
Revenue	100%	100%	100%	100%	100%	100%	100%	100%
Costs (% of Revenue)								
Fuel & Supplies	27.1%	24.6%	24.6%	25.4%	18%	15%	18%	17.1%
Labor - Hired & Owner	39.0%	36.6%	40.8%	38.8%	32%	31%	31%	31.5%
Vessel R&M, Insure, Overhead	23.0%	25.7%	27.5%	25.4%	14%	13%	15%	14.1%
Depreciation	5.3%	5.3%	6.8%	5.8%	3.7%	3.0%	3.2%	3.3%
Net Revenue from Operations	5.6%	7.7%	0.3%	4.5%	31%	38%	33%	34.0%

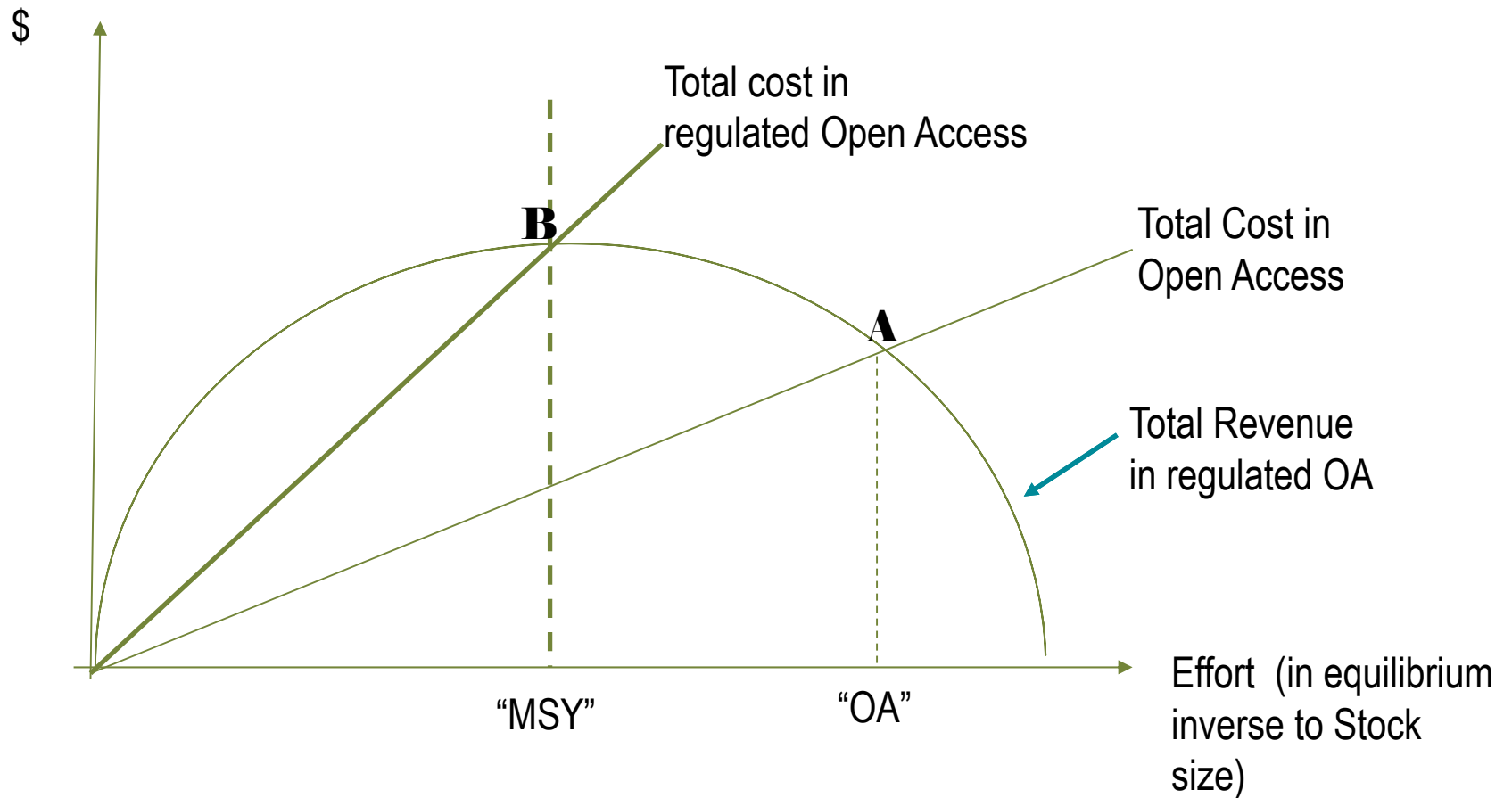


2014-2016 average of economic costs and net revenue as percentage of revenue

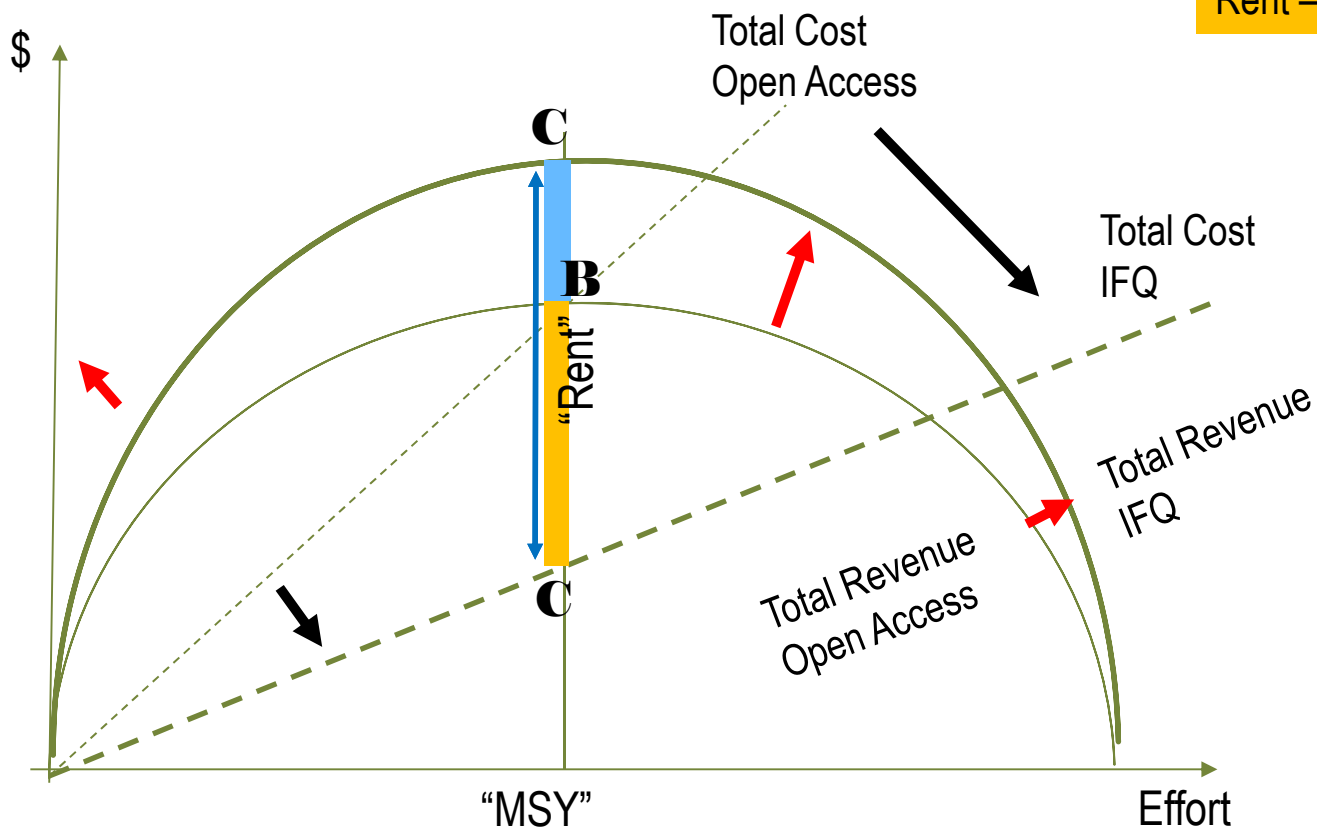
	SAT SG		GOM RF	
	as % of Rev.	in \$ million	as % of Rev.	in \$ million
Revenue	100.0%	17.6	100.0%	61.2
Costs				
Fuel & Supplies	25.4%	4.5	17.1%	10.5
Labor - Hired & Owner	38.8%	6.8	31.5%	19.3
Vessel R&M, Insure, Overhead	25.4%	4.5	14.1%	8.6
Depreciation	5.8%	1.0	3.3%	2.0
Net Revenue from Operations	4.5%	0.8	34.0%	20.8
Opportunity Cost - Capital	4.5%	0.8	2.4%	1.5
Resource Rent (approx)	0.1%	0.0	31.6%	19.4



Conceptual - illustrated



Conceptual - illustrated



Rent – due to Price increase

Rent – due to Cost reduction



SAT S&G management scenarios



SAT S&G Fishery under different management regimes (in USD millions)

	Current	IFQ	IFQ with price effect	Total Gains
Revenue	17.6	17.6	20.9	3.3
Costs				
Fuel & Supplies	4.5	3.6	3.6	0.9
Labor - Hired & Owner	6.8	6.6	6.6	0.2
Vessel R&M, Insure, Overhead	4.5	2.9	2.9	1.5
Depreciation	1.0	0.7	0.7	0.3
Net Revenue from Operations	0.8	3.8	7.1	6.3
Opportunity Cost - Capital	0.8	0.5	0.5	0.3
Resource Rent (approx)	0.0	3.3	6.6	6.6

Summary

SAT S&G management

- Dissipating \$3-6 million of resource rent by using:
 - Twice as many vessels
 - 300,000 more gallons fuel
 - 20% too much labor
 - Lower price of fish?
- Limited entry anyway
- Huge amount of reactive management; complex

IFQ management

- Less vessels; longer, more efficient trips with more crew;
- More multi-species trips within fishery; yet vessels more specialized on RF
- But rent mostly accrues to shareholders
- Shares represent all future earnings---all future Rent!

Comparing 2014 Econ Results to Prediction: Weninger and Waters (JEEM 2003)

	Ex-Ante Prediction		Ex-Post Realization (so far)			% predicted
	1993 nominal	1993 in 2014	Source	2014 in 2014		
Revenue Gain	3.2	4.8	2014 vs. 1993	4.6		96%
VarCost Reduction	4.9	7.4	2014 vs. 2006	5.7		77%
FixedCost Reduction	3.2	4.8	2014 vs. 2006	1.1		23%
Total	11.3	17.0		11.4		67%

(SOI “Northern” Gulf of Mexico Reef Fishery; USD in millions)

[Vessels: 1993 - 387, 2006 - 258, 2014 - 190]



Calculating “Rent” differently

e.g., Red Snapper			
	Harvest (lbs)	Allocation prices	Implied "Rent"
2014	5,016,056	\$3.72	\$ 18,659,728
2015	6,472,261	\$3.75	\$ 24,270,979
2016	6,057,498	\$3.87	\$ 23,442,517
2017	6,287,083	\$3.92	\$ 24,645,365
2018	6,285,704	\$3.92	\$ 24,639,960
2019	6,899,225	\$4.18	\$ 28,838,761
2020	6,869,921	\$4.08	\$ 28,029,278
2021	6,894,004	\$4.07	\$ 28,058,596
2022	6,830,621	\$4.15	\$ 28,347,077

Estimate of annual rent using cost data (in \$2016): \$19.4 million

Estimate of annual rent using IFQ allocation prices: \$24.7 million



Relationship between IFQ Allocation prices and Share prices

e.g., Red Snapper

	Allocation Price	Share Price (lb equivalent)	Implicit discount rate	Price-Earnings Ratio
2007	\$2.71	\$15.16	18%	6
2008	\$3.11	\$15.58	20%	5
2009	\$3.60	\$27.63	13%	8
2010	\$3.82	\$26.25	15%	7
2011	\$3.83	\$37.29	10%	10
2012	\$3.82	\$44.21	9%	12
2013	\$3.72	\$45.98	8%	12
2014	\$3.72	\$42.19	9%	11
2015	\$3.75	\$40.86	9%	11
2016	\$3.87	\$36.89	10%	10
2017	\$3.92	\$41.09	10%	10
2018	\$3.92	\$41.81	9%	11
2019	\$4.18	\$43.38	10%	10
2020	\$4.08	\$44.29	9%	11
2021	\$4.07	\$48.55	8%	12
2022	\$4.15	\$42.81	10%	10
5-year mean	\$4.08	\$44.17	9%	11



Questions

