



NOAA
FISHERIES

SEFSC

**Social Science
Research Group**

Economics of the US South Atlantic Snapper-Grouper Fishery - 2016

Delivering Economic Results: Using R and Markdown
to Automate the Cleaning, Analysis, and Reporting of
Coastal Logbook Data by User-Defined Subsets

April 8/9, 2019

New Annual Reports



NOAA FISHERIES

Outline

- Economic surveys and their design
- Economic reporting *system*
- Snapper-Grouper economics
- King Mackerel economics (preliminary)

Survey Design – Question Development

Stylized Cash Flow Statement (period of time)

Incoming/Receipts

From operations

- S&G fish revenue
- Other commercial fishing revenue

Non-operating

- Other income

Outgoing/Payments

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">• S&G 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
<p>Vessel and Gear (market value)</p>	<p>Loans (outstanding amount)</p> <p>Equity</p>



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: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		County or Parish: _____ State: <input type="text"/> <input type="text"/>	
Vessel No.: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		MM DD YY		Dealer Name: _____	
Operator Name: _____		Trip Unload Date: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		SE Federal Dealer Number: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
Operator Number: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		Days at Sea: <input type="text"/> <input type="text"/> No. of Crew: <input type="text"/> <input type="text"/>		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"/> Strike <input type="checkbox"/> Other		Drift Anchor <input type="checkbox"/> Other	
Hook & Line <input type="checkbox"/> Hand <input type="checkbox"/> Bandit <input type="checkbox"/> Trolling <input type="checkbox"/> Buoy		Divers (S) <input type="checkbox"/> Spear <input type="checkbox"/> Power		Other Gear (O)					
Total # Trap Hauls	# Sets	# Sets	# Lines	# of Divers	Type	Total Hrs Fished	Total Hrs Fished		
# Traps Used	# Hooks per Line	Length (yards)	# Hooks per Line						
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: _____ NMFS use only						
Mesh: <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Length (miles)	Mesh:							

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 Knobbled	3308	#	#									
Almaco	1810	#	#				R Red	3302	#	#									
Banded Rudder	1817	#	#				G 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"/>	<input type="text"/>	Price per Gallon \$	<input type="text"/>	Bait Expense \$	<input type="text"/>	Ice Expense \$	<input type="text"/>
Grocery Expense	\$	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Misc. Trip Expenses	\$	<input type="text"/>	<input type="text"/>	IFQ Allocation Purchased for This Trip	\$
Has the payment for your catch been determined?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If Yes	<input type="checkbox"/>	Total Trip Revenue	\$	<input type="text"/>	<input type="text"/>	<input type="text"/>	Total Payment to HIRED Crew and Captain	\$

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. 0548-0018

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: <input type="checkbox"/> No <input type="checkbox"/> 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:	<input type="text"/> <input type="text"/> <input type="text"/> days	\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
3. Chartering/for-hire fishing:	<input type="text"/> <input type="text"/> <input type="text"/> days	\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
4. Vessel active but NOT fishing:	<input type="text"/> <input type="text"/> <input type="text"/> days	\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
TOTAL TRIP-RELATED EXPENSES FOR THIS VESSEL IN 2016			
5. Total paid for fuel:		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
6. Total paid for other trip-related expenses: (bait, ice, groceries, oil, lubricants, tackle, etc.)		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
7. Total paid for IFQ allocation transferred FROM another IFQ account:		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
8. (a) Did the vessel employ HIRED crew and/or HIRED captains?	<input type="checkbox"/> Yes <input type="checkbox"/> 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)		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
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.)		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
(b) Does the amount in Question 10. (a) include a haul-out?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
10. (a) Vessel insurance in 2016 (please check all that apply):	<input type="checkbox"/> None <input type="checkbox"/> Hull <input type="checkbox"/> P&I		
(b) Total paid for vessel insurance in 2016 (insurance premium):		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
11. Total loan payments for this vessel in 2016:		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
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.)		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>
13. Please estimate the current market value of this vessel and its associated gear and equipment (do NOT include IFQ quota share):		\$	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/> <input type="text"/>

Implementation

- Trip data: Continuous data validation and sendbacks (data entry contracted out with logbook)
- Annual data: Active January-August, with student help for mailing, validation, data entry

Toward Systematic Reporting

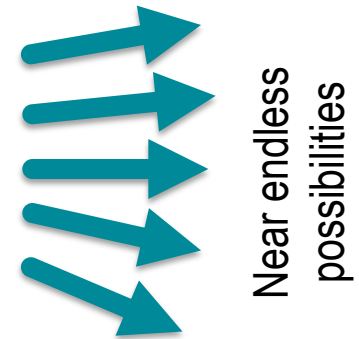
Past Use of Data

- Estimation of cost functions
 - Management support: Jim Waters' simulation model
 - Various research efforts
-
- But no systematic reporting of cost data

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

Automation:

Data Processing, Cleaning, Result Generation

- Problems:
 - Heterogeneous fisheries, vessels, trips
 - Ex-ante selection, fishery participation unknown
 - Fisheries data (!)
- Built **System** with Liz Overstreet:
 - Extraction, Consolidation and Transformation
 - Cleaning, cleaning, cleaning
 - Post-Stratification: Segment of Interest (SOI)

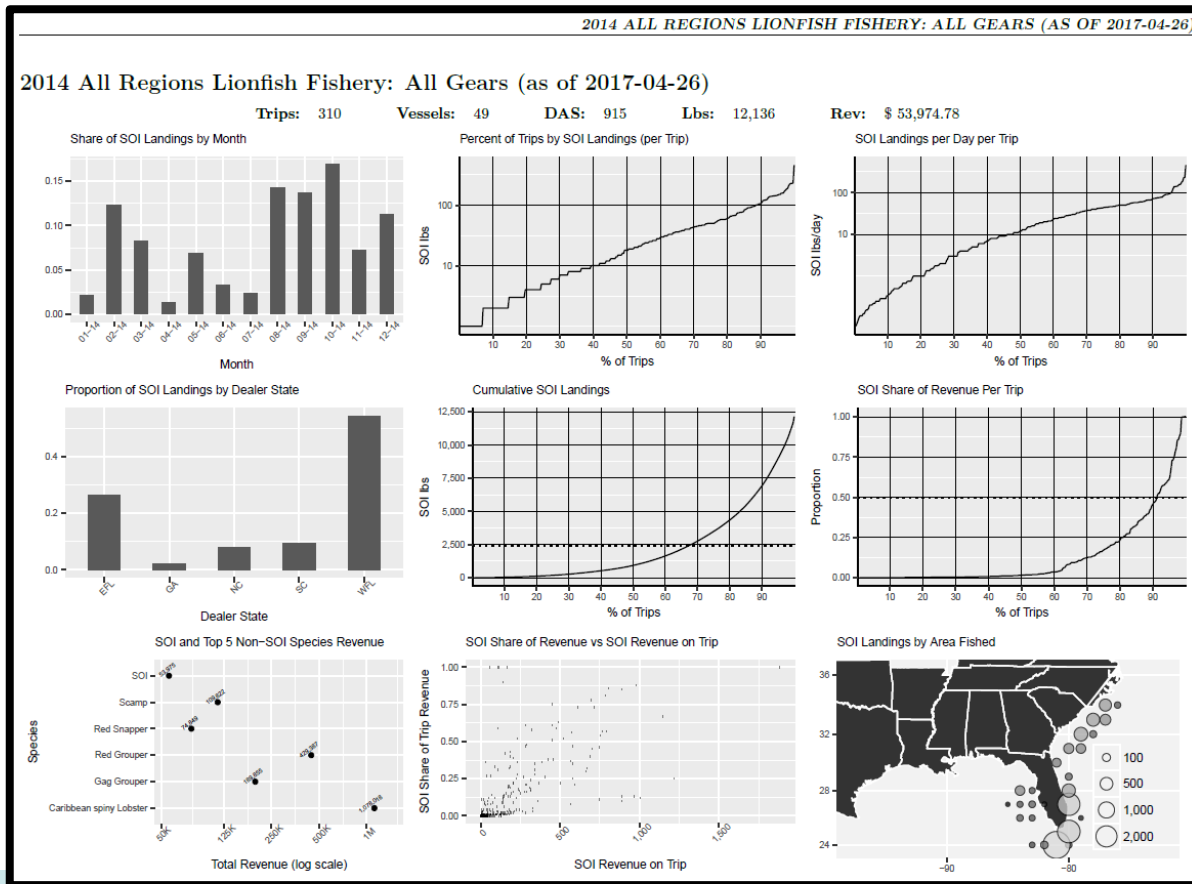


Diagnostic Report: Results for Any SOI

- 6 page standardized PDF with extensive summaries and results

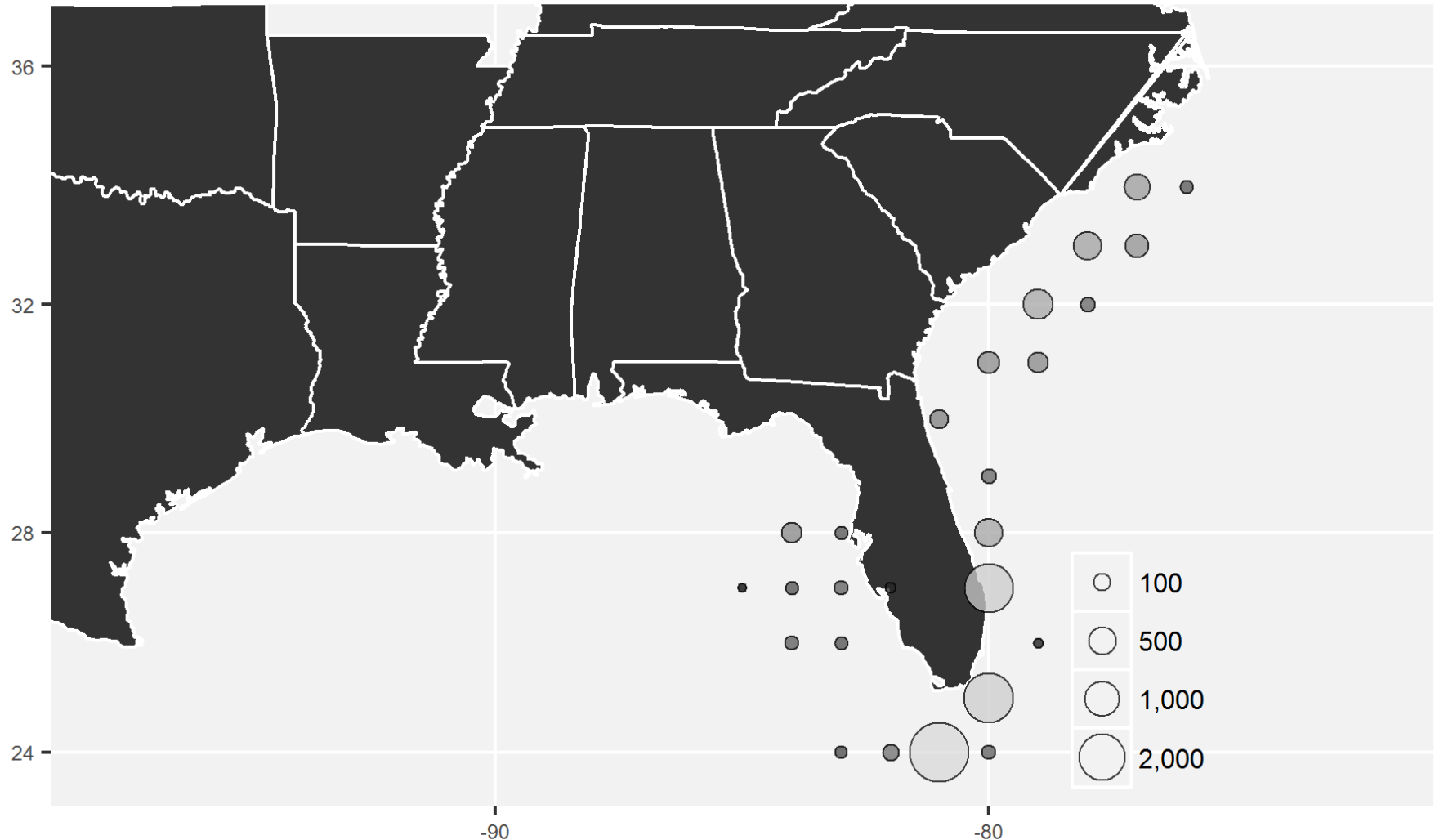


Page 1

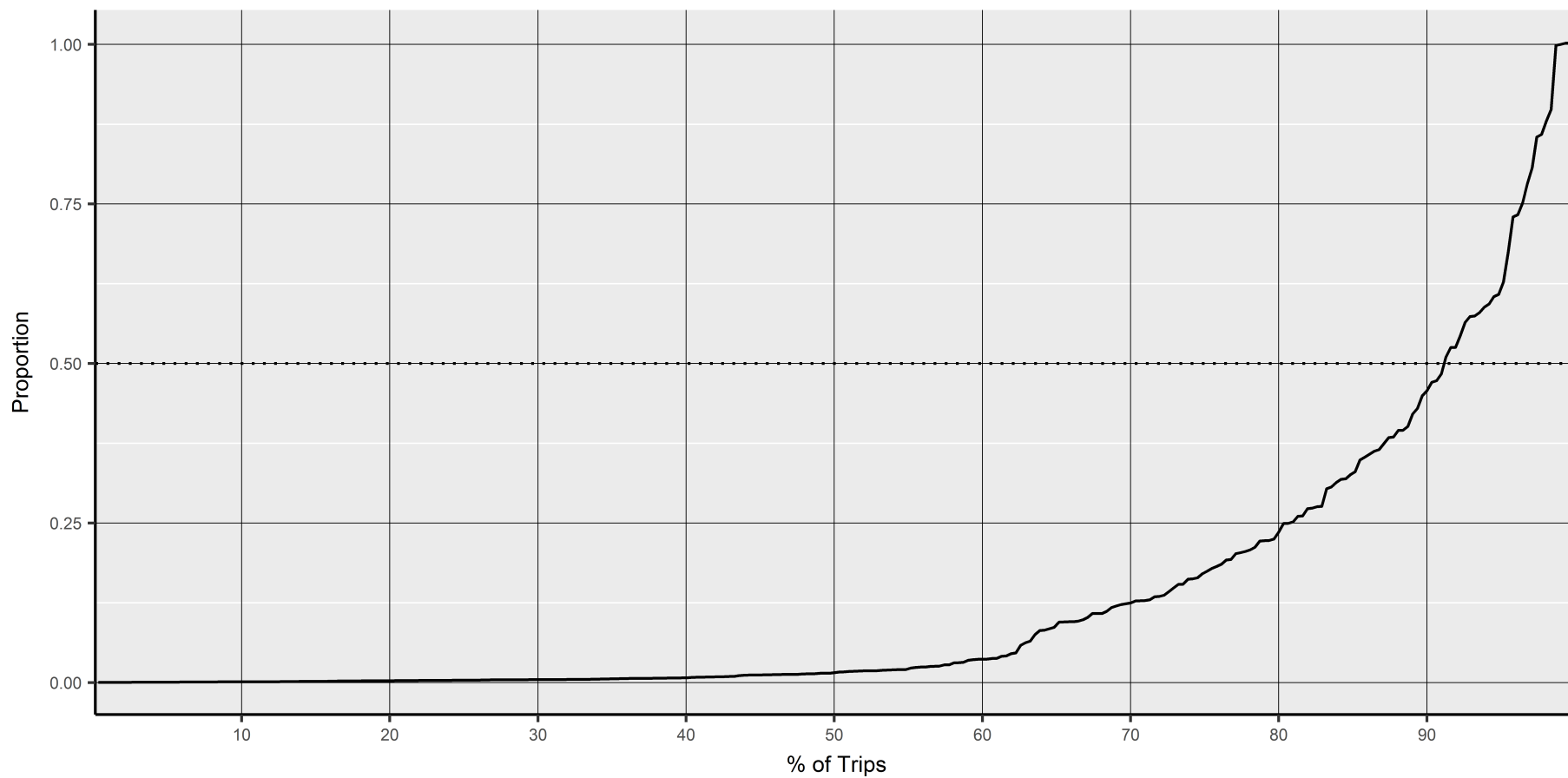


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Summarize SOI Population Level



SOI share of revenue per trip



Compare SOI Econ Sample to Population

Vessel Characteristics – SOI Population

Variable	n	Mean	Min	Med	Max
Length	49	37	22	38	53
Year	49	1990	1961	1988	2012
Power	49	404	200	350	1,200
Gr. Tons	30	25	11	23	49

Vessel Characteristics – SOI Sample with Economic Data

Variable	n	Mean	Min	Med	Max
Length	10	37	25	35	50
Year	10	1991	1979	1990.5	2008
Power	10	399	210	387.5	700
Gr. Tons	4	27	15	22	49



Trip-level Economics - Impact of Cleaning

	n	% 0	Mean	Max	Clean n	Clean Mean	Clean Min	Clean Med	Clean Max
Days at Sea	82	-	2.6	9	81	2.7	1	1	9
Crew Size	82	-	2.3	5	81	2.3	1	2	5
Landings (lbs)	82	0	788	6,045	81	795	21	406	6,045
Fuel Used	82	0	78	525	81	79	10	55	525
Fuel Unit Price	82	0	3.62	4.25	81	3.63	2.5	3.7	4.25
C Fuel	82	0	284	1,838	81	287	35	190	1,838
C Bait	82	62.2	57	787	81	58	0	0	787
C Ice	82	14.6	50	508	81	50	0	20	508
C Grocery	82	0	99	1,080	81	100	10	30	1,080
C Misc	78	7.7	129	620	81	123	0	60	620
C Hired Crew	80	5	1,747	6,766	81	1,691	0	600	6,766
OC OwnerVessTime	81	74.1	479	4,384	81	517	0	0	4,384
C IFQ	60	91.7	171	5,214	81	126	0	0	5,214
Total Revenue	81	0	3,299	14,758	81	3,391	67	1,390	19,972
Net Cash Flow	81	1.2	831	5,238	81	955	-720	493	5,238
Net Revenue	81	1.2	479	5,214	81	565	-2,506	366	10,428



Trip-level Economics (SOI Statistical Estimators)

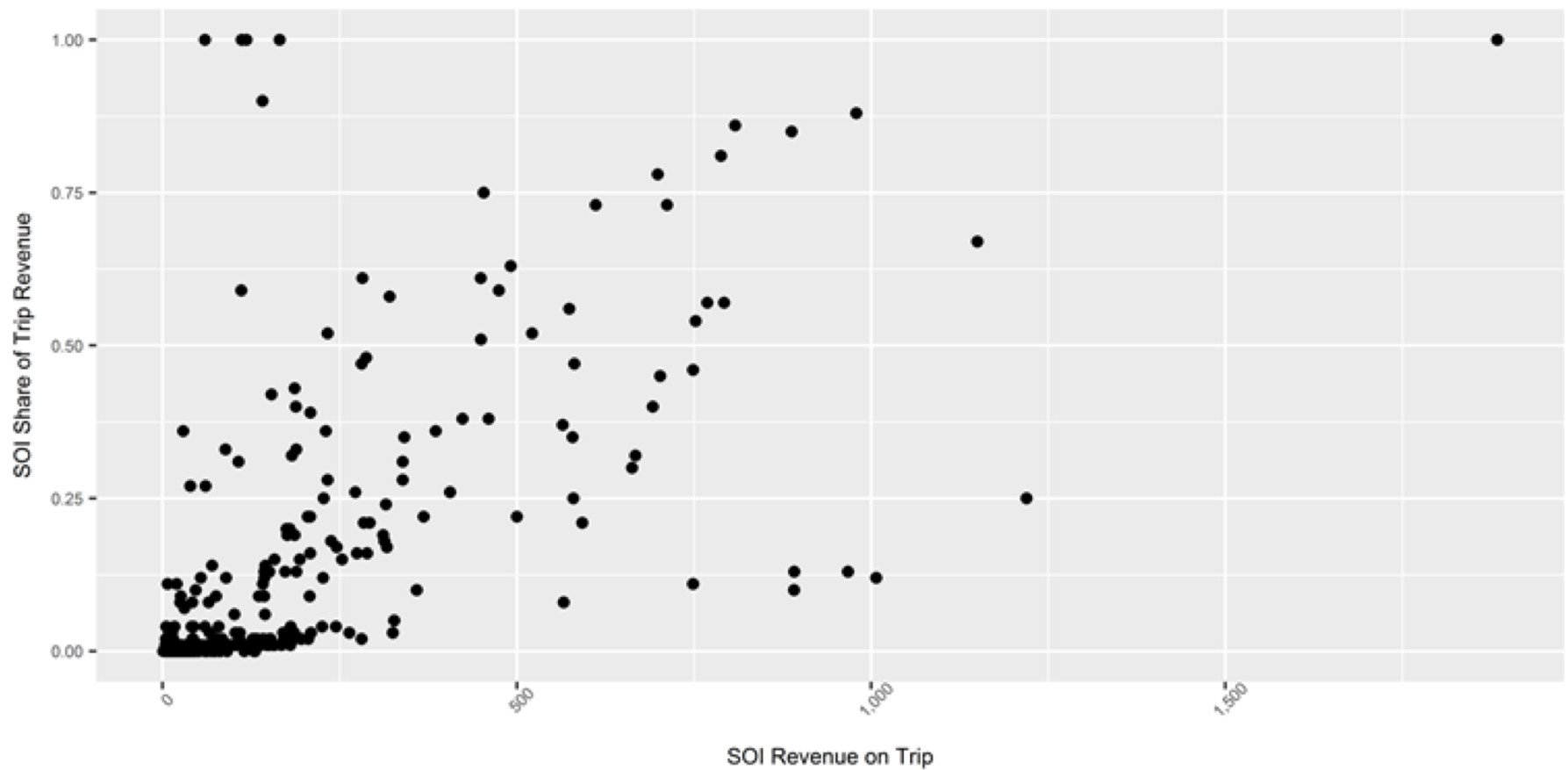
	Mean	SE	90% LB	90% UB
Days at Sea	3.92	0.7	2.62	5.22
Crew Size	2.59	0.2	2.22	2.96
Landings (lbs)	1,550	383	867	2,234
Fuel Used	159	33	99	218
Fuel Unit Price	3.59	0.05	3.5	3.67
C Fuel	568	117	359	777
C Bait	151	56	51	250
C Ice	100	26	53	146
C Grocery	187	49	101	274
C Misc	120	25	75	165
C Hired Crew	2,222	416	1,479	2,964
OC OwnerVessTime	617	211	241	992
C IFQ	498	347	-121	1,116
Total Revenue	5,579	1,255	3,342	7,815
Net Cash Flow	1,734	417	990	2,477
Net Revenue	1,615	678	407	2,823

Annual, Vessel-level Economics (SOI Statistical Estimators)

Variable	Mean	SE	90% LB	90% UB
Vessel Value	94,500	19,584	58,600	130,400
Commercial Days	88	11.1	67	108
Charter Days	3	1.7	0	6
Nonfishing Days	9	8.4	-6	25
Annual Revenue	93,836	13,416	69,243	118,429
Commercial Revenue	92,458	13,174	68,309	116,608
Charter Revenue	1,378	955	-373	3,128
Costs				
Fuel	12,346	2,563	7,647	17,045
Other Expenses	15,446	7,259	2,139	28,754
Hired Crew	33,532	9,036	16,969	50,096
Vessel Repair	10,933	3,142	5,174	16,693
Insurance	719	411	-35	1,473
Loan Payments	2,663	1,280	316	5,010
Overhead	16,555	10,339	-2,399	35,508
IFQ	4,908	2,556	223	9,593
Annual Expenses	97,102	14,442	70,629	123,576
Net Cash Flow	-3,266	12,913	-26,938	20,405



SOI share of revenue vs. SOI revenue on trip



Snapper-Grouper Fishery



Snapper-Grouper FMP species

Species	Revenue	lbs (gw)	Trips	Vessels	Use Econ Results of SOI:
Almaco Jack	\$145,661	135,023	1,288	180	FMP Jacks
Atlantic Spadefish	\$0	0	0	0	Snapper-Grouper FMP
Banded Rudderfish	\$39,117	42,622	362	103	FMP Jacks
Bar Jack	\$907	893	30	14	FMP Jacks
Blackfin Snapper	\$1,803	475	31	24	FMP Deepwater
Black Grouper	\$314,671	60,724	896	157	FMP SWGCS
Black Sea Bass*	\$736,930	209,455	1,905	186	Black Sea Bass
Blueline Tilefish	\$347,120	105,149	877	150	FMP Deepwater
Coney	\$20	9	2	1	FMP SWGCS
Cubera Snapper	\$12,493	3,969	72	37	Snapper-Grouper FMP
Gag Grouper	\$1,174,131	199,830	1,426	201	Gag Grouper
Golden Tilefish*	\$2,259,007	517,592	821	117	FMP Deepwater
Goliath Grouper	\$0	0	0	0	Snapper-Grouper FMP
Graysby	\$1,050	190	29	8	FMP SWGCS
Gray Snapper	\$403,381	119,747	1,974	262	Snapper-Grouper FMP
Gray Triggerfish	\$658,474	260,565	1,680	200	Triggerfish
Greater Amberjack	\$1,193,133	750,624	1,943	254	FMP Jacks
Hogfish	\$120,698	27,036	776	133	Snapper-Grouper FMP
Jolthead Porgy	\$24,686	16,248	529	117	Snapper-Grouper FMP
Knobbed Porgy	\$6,197	4,404	265	62	Snapper-Grouper FMP
Lane Snapper	\$7,111	2,382	179	59	Snapper-Grouper FMP
Lesser Amberjack	\$9,243	6,221	76	48	FMP Jacks
Margate	\$3,215	3,203	225	54	Snapper-Grouper FMP
Misty Grouper	\$53	16	2	2	FMP Deepwater
Mutton Snapper	\$206,103	61,196	1,698	248	Snapper-Grouper FMP
Nassau Grouper	\$0	0	0	0	Snapper-Grouper FMP
Queen Snapper	\$6,810	1,736	19	15	FMP Deepwater

Snapper-Grouper FMP species, cont.

Species	Revenue	lbs (gw)	Trips	Vessels	Use Econ Results of SOI:
Red Grouper	\$176,444	38,129	806	209	FMP SWGCS
Red Hind	\$10,076	2,333	205	66	FMP SWGCS
Red Porgy	\$214,606	97,884	1,212	144	Snapper-Grouper FMP
Red Snapper	\$16,177	3,887	27	22	Snapper-Grouper FMP
Rock Hind	\$27,245	4,868	337	77	FMP SWGCS
Sailor's Choice Grunt	\$122	89	1	1	Snapper-Grouper FMP
Sand Tilefish	\$735	633	57	20	FMP Deepwater
Saucereye Porgy	\$0	0	0	0	Snapper-Grouper FMP
Scamp	\$632,403	104,264	909	142	Scamp
Scup	\$26	22	3	3	Snapper-Grouper FMP
Silk Snapper	\$78,145	19,135	330	79	FMP Deepwater
Snowy Grouper	\$721,020	141,479	1,117	159	FMP Deepwater
Speckled Hind	\$1,153	287	26	18	Snapper-Grouper FMP
Tomtate Grunt	\$36	29	4	2	Snapper-Grouper FMP
Vermilion Snapper	\$2,828,743	741,286	1,693	206	Vermilion Snapper
Warsaw Grouper	\$3,033	794	3	3	Snapper-Grouper FMP
Whitebone Porgy	\$1,634	1,115	116	36	Snapper-Grouper FMP
White Grunt	\$57,598	43,878	877	101	Snapper-Grouper FMP
Yellowedge Grouper	\$94,443	18,631	281	86	FMP Deepwater
Yellowfin Grouper	\$3,938	737	15	10	FMP SWGCS
Yellowmouth Grouper	\$569	124	3	3	FMP SWGCS
Yellowtail Snapper	\$4,641,553	1,342,760	4,636	257	Yellowtail Snapper



SOIs in the Report

1. SAT Snapper-Grouper FMP Fishery: All Gears

SOIs based on species perspective

2. SAT Yellowtail Snapper Fishery: All Gears
3. SAT Vermilion Snapper Fishery: All Gears
4. SAT Gag Grouper Fishery: All Gears
5. SAT Black Sea Bass Fishery: All Gears
6. SAT Triggerfish Fishery: All Gears
7. SAT Scamp Fishery: All Gears

SOIs based on species group perspective

8. SAT FMP Deepwater Fishery: All Gears
9. SAT FMP Jacks Fishery: All Gears
10. SAT FMP SWGCS⁸ Fishery: All Gears

SOI based on permit perspective

11. SAT Snapper-Grouper FMP Fishery: All Gears, SG2 Permit

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%

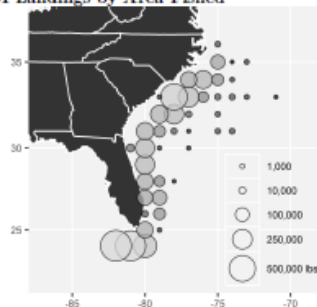
Percent of Revenue by Species Group

Shallow Water Groupers	12%
Shallow Water Snappers	28%
Mid-Shelf Snappers	16%
Deep Water Groupers/Tilefish	18%
Grouper/Porgy/Sea Bass/Trigger	10%
Mackerels/Dolphinfish/Jacks	10%
Other Species	5%

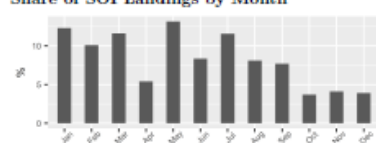
Revenue for Top 5 Species

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

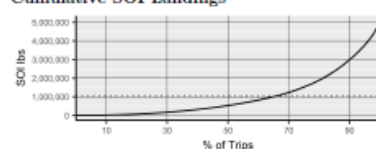
SOI Landings by Area Fished



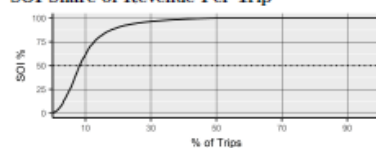
Share of SOI Landings by Month



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	2,706	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

Vessels	509
Trips - Total	15,312
SOI Trips	11,386
Non-SOI Trips	3,926
Days at Sea	23,772
Crew Days	49,117

Landings (gutted lbs)

Total	8,197,473
SOI	5,101,373
Non-SOI	3,096,100
% SOI	62%

Percent by Gear

	Trips	Total lbs
Vertical Line	73%	65%
Longline	4%	12%
Diver	5%	3%
Traps/Pots	1%	1%
Other	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%
Grun/Parrot/Sea Bass/Trigger	8%
Mackerels/Dolphinfish/Jacks	20%
Other Species	8%

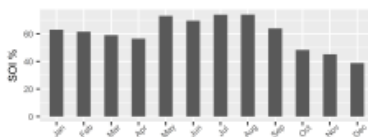
Revenue for Top 5 Species

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

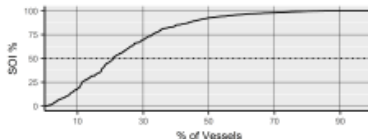
Annual, Vessel Descriptive Statistics (N=509)

	Mean	Min	Median	Max
Trips	30.1	1	19	234
Days at Sea	46.7	1	31	234
Crew Days	96.5	1	61	545
Landings	16,105	10	6,966	210,425
Revenue	\$46,197	\$34	\$21,886	\$541,023
SOI	\$33,786	\$3	\$12,699	\$239,006
% SOI	75.9%	0%	92.7%	100%

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%

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%	-	-	-

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.



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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 (gutted 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 (gutted 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%

Trip-Level Summary

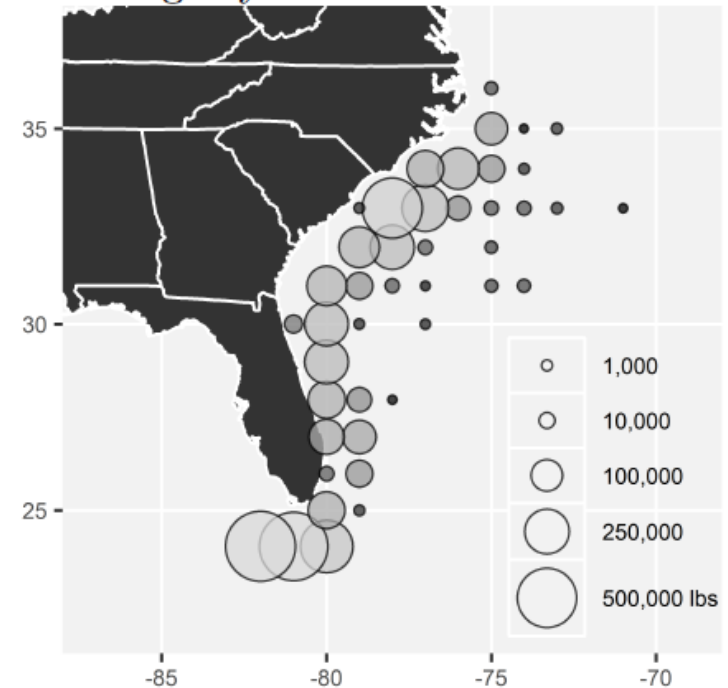
Effort

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

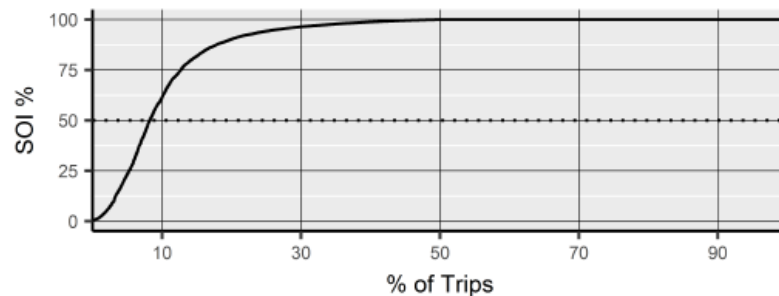
Revenue

<u>Total</u>	<u>\$18,789,938</u>
SOI	\$17,197,008
Non-SOI	\$1,592,930
% SOI	92%

SOI Landings by Area Fished



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%

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%



Trip-Level Economics, cont.

Economic Results (n=2,612)

	Mean	SE	90% L.B.	90% U.B.	Median
SOI Trip					
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-Level Economics, cont.

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.

Annual, Vessel-Level Summary

Effort

Vessels	509
<u>Trips - Total</u>	<u>15,312</u>
SOI Trips	11,386
Non-SOI Trips	3,926

Revenue

<u>Total</u>	<u>\$23,514,107</u>
SOI	\$17,197,008
Non-SOI	\$6,317,098
% SOI	73%

Annual, Vessel Descriptive Statistics (N=509)

	Mean	Min	Median	Max
Trips	30.1	1	19	234
Days at Sea	46.7	1	31	234
Crew Days	96.5	1	61	545
Landings	16,105	10	6,966	210,425
Revenue	\$46,197	\$34	\$21,886	\$541,023
SOI	\$33,786	\$3	\$12,699	\$239,006
% SOI	75.9%	0%	92.7%	100%

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%

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%	-	-	-



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%



Annual, Vessel-Level Economics, cont.

Economic Results (n=94)

	Mean	SE	90% L.B.	90% U.B.	Median
SOI Vessel					
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

Annual, Vessel-Level Economics, cont.

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.



Time Series – 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

Time Series – 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%

Mackerel/CMP Fisheries

Preliminary



2014-16 averages by fishery

	SA S&G	SA KingM	GOM ReefFish	GOM KingM
		Preliminary		Preliminary
Revenue	\$17.6 million	\$4.9 million	\$61.2 million	\$5.1 million
Landings	5.3 million	2.2 million	15.2 million	2.3 million
Trips	11,521	10,083	6,751	2,335
Vessels	518	651	522	259
% SOI	72%	24%	93%	19%
Vessel Value	\$82,793	\$62,813	\$102,150	\$97,314
OwnerOperator	88%	92%	75%	76%
Active ForHire	18%	19%	14%	19%
Revenue	100%	100%	100%	100%
Fuel and Supply	25%	27%	17%	19%
Labor - Hired	27%	21%	26%	26%
Labor - Owner	12%	16%	6%	7%
Fixed Costs	25%	28%	14%	16%
Depreciation	6%	7%	3%	4%
Net Rev from Op	5%	2%	34%	29%



Questions



Comparison with Gulf Reef Fish Fishery



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%

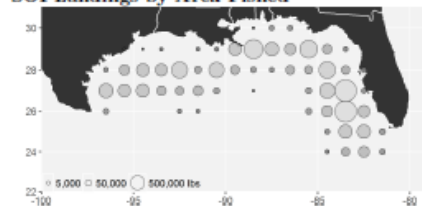
Percent of Revenue by Species Group

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%

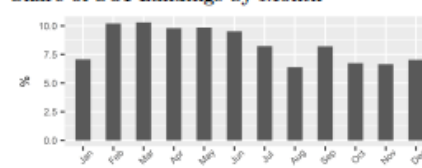
Revenue for Top 5 Species

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

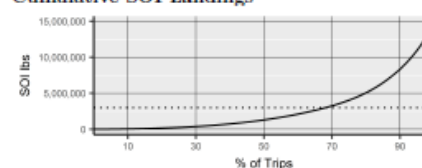
SOI Landings by Area Fished



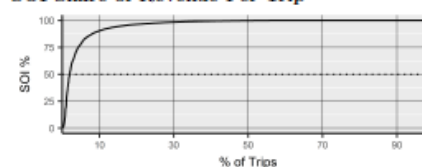
Share of SOI Landings by Month



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%

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)

	Mean	SE	90% L.B.	90% U.B.	Median
SOI Trip					
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



NOAA FISHERIES

SOI: 2016 GOM Reef Fish FMP Fishery: All Gears

Annual, Vessel-Level Summary

Effort	
Vessels	512
Trips - Total	8,369
SOI Trips	6,918
Non-SOI Trips	1,451
Days at Sea	32,947
Crew Days	93,956

Landings (gutted lbs)	
Total	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)	
Total	\$3.84
SOI	\$4.07
Non-SOI	\$2.14

Revenue	
Total	\$65,138,736
SOI	\$60,844,287
Non-SOI	\$4,294,449
% SOI	93%

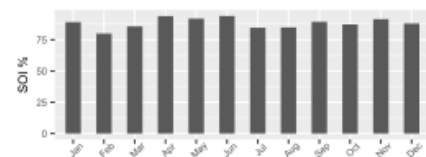
Percent of Revenue by Species Group	
Shallow Water Groupers	35%
Shallow Water Snappers	4%
Mid-Shelf Snappers	46%
Deep Water Groupers/Tilefish	8%
Grunts/Porgies/Triggerfish	1%
Mackerels/Dolphinfish/Jacks	4%
Other Species	0.6%

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

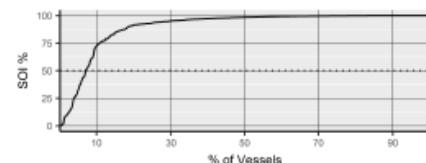
Annual, Vessel Descriptive Statistics (N=512)

	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%

SOI Share of Monthly Landings



SOI Share of Revenue Per Vessel



Percent with Federal Permit

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%

Vessel Characteristics (N=512)

	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%	-	-	-

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)

	Mean	SE	90% L.B.	90% U.B.	Median
SOI Vessel					
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.



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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 (gutted 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

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 (gutted 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%

