

# Summary of Economic and Social Components of FMPs

## Economic Components: Commercial Sector

### -Number of commercial permits

- By permit type
- By state or region
- Dealer permits

### EXAMPLES:

**Table 1.** Number of valid or renewable South Atlantic commercial snapper grouper permits (2010 through 2014).

	Unlimited	225-lb Trip-limited
<b>2010</b>	624	139
<b>2011</b>	615	138
<b>2012</b>	604	132
<b>2013</b>	592	129
<b>2014</b>	584	125
<b>Average</b>	604	133

Source: NMFS SERO Permits Dataset, 2015.

**Table 2.** Number and percentage of valid and renewable/transferable snapper grouper permits by state of residence of permit holder as of March 9, 2016.

State	Unlimited permits		225-pound permits	
	Number	%	Number	%
FL	375	67.6%	103	88.8%
GA	6	1.1%	0	0.0%
NC	104	18.7%	8	6.9%
SC	52	9.4%	2	1.7%
Other	18	3.2%	3	2.6%
Total	555	100.0%	116	100.0%

Source: NMFS SERO PIMS.

**Table 3.** Number and percentage of Gulf and South Atlantic dealer permits by state of residence of permit holder as of March 23, 2016.

State	Number	Percent
FL	240	57.4%
GA	4	1.0%
NC	56	13.4%
SC	25	6.0%
Subtotal	325	77.8%
All Other	93	22.2%
Total	418	100.0%

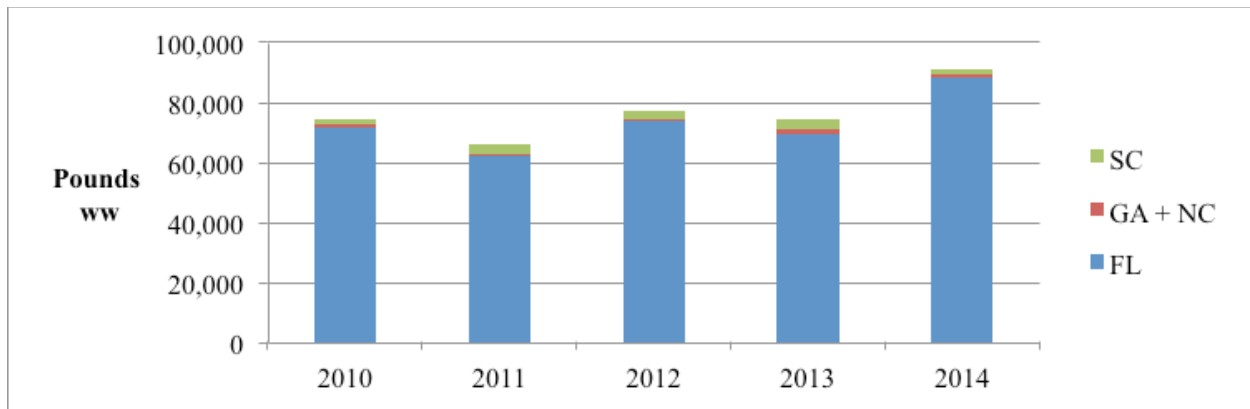
**-Landings**

- By weight
- Regional/state breakdown
- Seasonality of landings
- By gear

**EXAMPLES:**

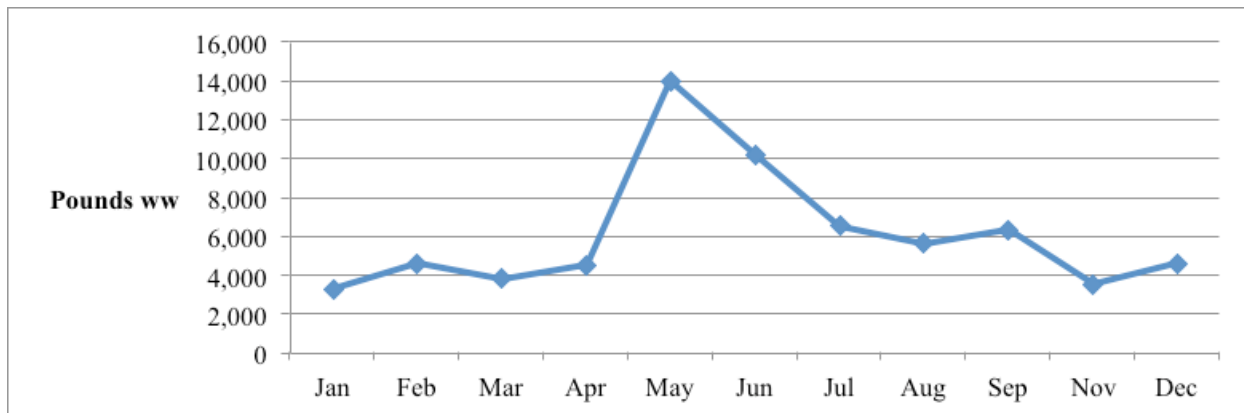
**Table 4.** Commercial landings (lbs ww) and ACL for mutton snapper harvested from South Atlantic Region, 2010-2014.

Year	Landings	Baseline ACL	Percent ACL
2010	74,833		
2011	66,160		
2012	77,231	157,743	48.9%
2013	75,010	157,743	47.1%
2014	91,173	157,743	55.8%
Average	76,881	157,743	48.7%



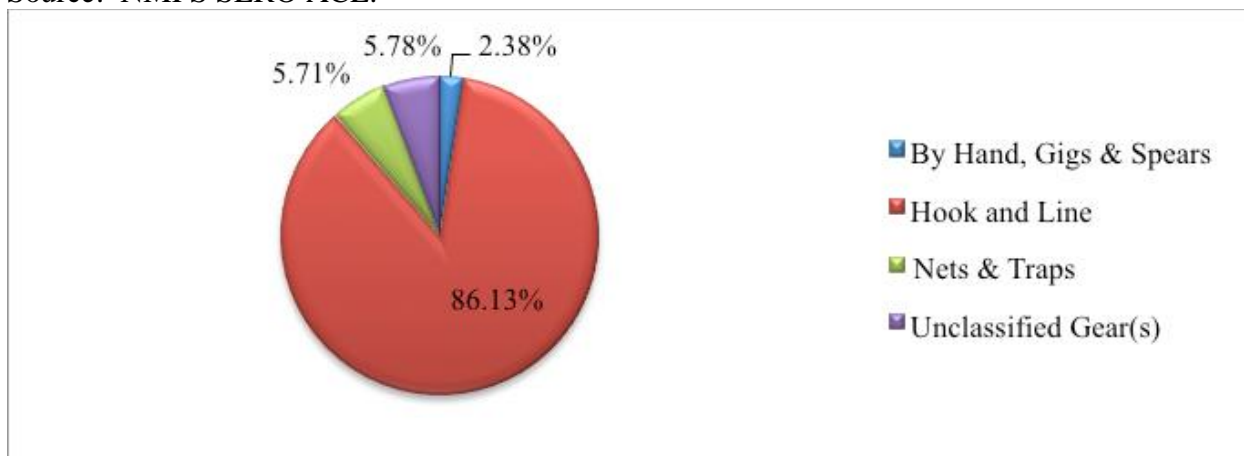
**Figure 1.** Annual commercial landings (lbs ww) of mutton snapper harvested from South Atlantic region by state, 2010-2014.

Source: NMFS SERO ACL.



**Figure 2.** Average monthly commercial landings (lbs ww) of mutton snapper harvested from the South Atlantic region and landed in Florida, 2010-2014.

Source: NMFS SERO ACL.



**Figure 3.** Percentage of mutton snapper landings (lbs ww) by gear, 2010-2014.

Source: NMFS SERO ACL.

**-Commercial logbook data**

- Commercial logbook data for participant vessels to show landings of a specific species and how that species relates to commercial trips (by effort, weight, and ex-vessel value)
  - Effort
    - Number of vessels
    - Number of commercial trips landing species being examined
    - Number of commercial trips not landing species being examined
  - Weight
    - Weight of landings of species being examined
    - Weight of other jointly caught species
    - Weight of species caught on trips that did not land the species being examined

- Ex-vessel value (dockside value)
  - Ex-vessel value of landings of species being examined and of other jointly caught species
  - Ex-vessel value of species caught on trips that did not land the species being examined
  - Total ex-vessel value of all landings for vessels participating in landing the species being examined
  - Average per vessel total ex-vessel value of all landings for vessels participating in a specific fishery

**EXAMPLES:**

**Table 5.** Numbers and averages of vessels with trips with mutton snapper landings, 2010-2014.

Year	Number of vessels	Number of trips with mutton snapper	Number of trips without mutton snapper	Total trips	Percent of trips with mutton snapper	Average trips with mutton snapper per vessel	Average all trips per vessel
2010	315	1,497	8,437	9,934	15.1%	4.8	31.5
2011	278	1,470	7,787	9,257	15.9%	5.3	33.3
2012	259	1,414	7,540	8,954	15.8%	5.5	34.6
2013	255	1,416	7,049	8,465	16.7%	5.6	33.2
2014	261	1,736	8,656	10,383	16.7%	6.7	39.8
<b>Average</b>	<b>274</b>	<b>1,507</b>	<b>7,894</b>	<b>9,400</b>	<b>16.0%</b>	<b>5.5</b>	<b>34.5</b>

Source: NMFS SEFSC Economic Query System

**Table 6.** Pounds of mutton snapper and other species by vessels with mutton snapper landings, 2010-2014.

Year	Number of vessels	Pounds gw of mutton snapper	Pounds gw other species from mutton snapper trips	Total pounds gw from mutton snapper trips	Pounds gw from trips without mutton snapper	Total pounds gw from all trips	Percent mutton snapper of all pounds
2010	315	51,965	770,757	822,722	4,740,081	5,562,803	0.9%
2011	278	52,740	752,221	804,961	4,368,899	5,173,860	1.0%
2012	259	61,998	730,010	792,008	3,799,772	4,591,780	1.4%
2013	255	60,212	889,262	949,474	3,697,217	4,646,691	1.3%
2014	261	66,751	879,196	945,218	3,721,642	4,671,647	1.4%
<b>Average</b>	<b>274</b>	<b>58,733</b>	<b>804,289</b>	<b>863,022</b>	<b>4,066,334</b>	<b>4,929,356</b>	<b>1.2%</b>

Source: NMFS SEFSC Economic Query System

**Table 7.** Number of vessels and ex-vessel revenues by year (2014 dollars)\*.

	Number of vessels that caught hogfish	Dockside revenue from hogfish	Dockside revenue from 'other species' jointly caught with hogfish	Dockside revenue from 'other species' caught on SATL trips without hogfish	Total dockside revenue	Average total dockside revenue per vessel
2010	131	\$146,109	\$1,926,324	\$5,694,058	\$7,766,491	\$59,286
2011	147	\$131,513	\$1,915,203	\$6,872,024	\$8,918,740	\$60,672
2012	131	\$92,580	\$1,781,292	\$5,452,284	\$7,326,156	\$55,925
2013	129	\$108,809	\$1,835,368	\$6,249,005	\$8,193,182	\$63,513
2014	136	\$116,120	\$1,766,921	\$5,988,655	\$7,871,696	\$57,880
Average	135	\$119,026	\$1,845,022	\$6,051,205	\$8,015,253	\$59,455

Source: NMFS SEFSC Coastal Fisheries Logbook for landings and NMFS Accumulated Landings System for prices.

\*Revenues converted to 2014 dollars using the 2014 annual Consumer Price Index (CPI) for all US urban consumers provided by the Bureau of Labor and Statistics (BLS) (<http://www.bls.gov/data/>).

#### **-Imported seafood**

- Imported seafood that may serve as a substitute for the species being examined
  - Weight and value
  - Points of origin and entry into the U.S.

#### **EXAMPLE:**

“Imports of seafood products compete in the domestic seafood market and have in fact dominated many segments of the seafood market. Imports aid in determining the price for domestic seafood products and tend to set the price in the market segments in which they dominate. Seafood imports have downstream effects on the local fish market. At the harvest level for snapper and grouper species, including hogfish, imports affect the returns to fishermen through the ex-vessel prices they receive for their landings. As substitutes to domestic production of snappers and groupers, imports tend to cushion the adverse economic effects on consumers resulting from a reduction in domestic landings. The following describes the imports of fish products which directly compete with domestic harvest of snappers and groupers, including hogfish.

Imports<sup>1</sup> of fresh snapper were 22.8 million lbs product weight (pw) in 2010. They decreased to 21.7 million lbs pw in 2011, then increased steadily to 23.6 million lbs pw in 2014. Total revenue from fresh snapper imports increased from \$64.5 million (2014 dollars<sup>2</sup>) in 2010 to a five-year high of \$72.1 million in 2014. Imports of fresh snappers primarily originated in Mexico, Central America, or South America, and entered the U.S. through the port of Miami.

<sup>1</sup> NOAA Fisheries Service purchases fisheries trade data from the Foreign Trade Division of the U.S. Census Bureau. Data are available for download at <http://www.st.nmfs.noaa.gov/st1/trade/index.html>.

<sup>2</sup> Converted to 2014 dollars using the 2014 annual Consumer Price Index (CPI) for all US urban consumers provided by the Bureau of Labor and Statistics (BLS) (<http://www.bls.gov/data/>).

Imports of fresh snapper were highest on average (2010 through 2014) during the months March through July.

Imports of frozen snapper were substantially less than imports of fresh snapper from 2010 through 2014. The annual value of frozen snapper imports ranged from \$20.9 million (2014 dollars) to \$30 million during the time period, with a peak in 2012. Imports of frozen snapper primarily originated in South America (especially Brazil), Indonesia, and Mexico. The majority of frozen snapper imports entered the U.S. through the ports of Miami and New York. Imports of frozen snappers tended to be lowest during March through June when fresh snapper imports were the highest.

Imports of fresh grouper ranged from 8.2 million lbs pw to 10 million lbs pw from 2010 through 2014. Total revenue from fresh grouper ranged from \$27.6 million (2014 dollars) to \$36.8 million during this time period, with a peak in 2013. The bulk of fresh grouper imports originated in Mexico and entered the U.S. through Miami. From 2010 through 2014 fresh grouper imports were lowest on average during the month of March and higher the rest of the year, with a peak in July.

Imports of frozen grouper were minimal and stable from 2010 through 2014, ranging from 1.3 million lbs pw worth \$2.5 million (2014 dollars) to 2 million lbs pw worth \$3.6 million. Frozen grouper imports generally originated in Mexico and to a lesser extent, Asia and entered the U.S. through Miami and Tampa. There was an inverse relationship in monthly landings between frozen and fresh groupers, with average imports being the highest in March for frozen grouper and lower during other months.”

#### **-Economic impacts of commercial fishing activity**

- Uses I/O model based on ex-vessel value of landings to estimate jobs, income impacts, value added, and sales impacts.
  - Encompasses harvester through retailer in the supply chain.
- For the species being examined and for all revenue generated on trips landing the species being examined.

EXAMPLE:

**Table 8.** Average annual business activity (2010 through 2014) associated with the commercial harvest of hogfish and the harvest of all species by vessels that landed hogfish. All monetary estimates are in 2014 dollars.

Species	Average Ex-vessel Value (\$ thousands)	Total Jobs	Harvester Jobs	Output (Sales) Impacts (\$ thousands)	Income Impacts (\$ thousands)
Hogfish	\$119	20	3	\$1,567	\$668
All species on all trips made by vessels that landed greater than one pound of hogfish in a year.	\$8,015	1,374	179	\$105,533	\$44,977

**Economic Components: Recreational Sector**

**- Number of for-hire permits**

- Broken down by state based on vessel homeport

EXAMPLE:

**Table 9.** Number of South Atlantic for-hire snapper grouper permits, by homeport state, 2010-2014.

Home Port	2010	2011	2012	2013	2014	Average
North Carolina	331	330	312	307	294	315
South Carolina	145	132	138	150	160	145
Georgia	27	26	26	30	34	29
Florida	1,109	1,099	1,122	1,121	1,062	1,103
Gulf (AL-TX)	86	91	93	91	81	88
Others	114	103	106	100	96	104
Total	1,812	1,781	1,797	1,799	1,727	1,783

Source: NMFS SERO Permits Dataset, 2015.

**-Landings**

- By weight
- By region/State
- Seasonality
- Harvest and discards

**EXAMPLES:**

**Table 10.** Recreational landings (lbs ww) and ACL for mutton snapper, 2010-2014.

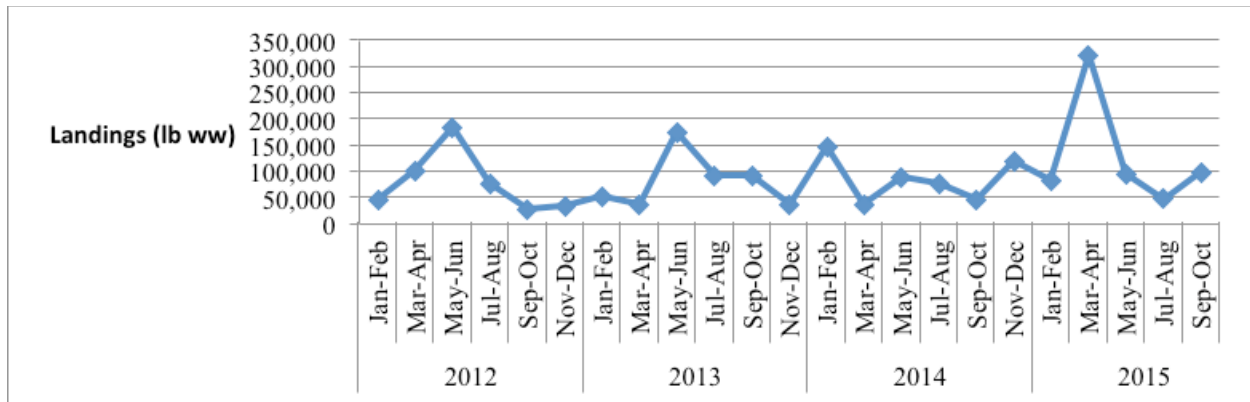
Year	Landings	Baseline ACL	Percent ACL
2010	477,647		
2011	251,446		
2012	505,583	768,857	65.8%
2013	660,449	768,857	85.9%
2014	538,122	768,857	70.0%
Average	486,649	768,857	63.3%

Source: NMFS SERO ACL.

**Table 11.** Recreational landings (lbs gw) of hogfish, by area, 2010-2014.

Year	North Carolina	South Carolina	Georgia / East FL*	East Florida	Monroe County	Total
2010	1,771	1,992	108	54,078	128,002	185,952
2011	461	79	744	48,525	40,797	90,606
2012	4,178	3	178	84,042	281,172	369,573
2013	825	5	255	63,998	92,768	157,852
2014	8	16	368	111,410	154,087	265,889
Average	1,448	419	331	72,411	139,365	213,974

Source: SEFSC Marine Recreational Information Program (MRIP) ACL datasets (July 2015).



**Figure 4.** Recreational landings (lbs gw) of mutton snapper in South Atlantic Region by wave, 2012-2015.

Source: NMFS SERO Historical South Atlantic Recreational Landings

([http://sero.nmfs.noaa.gov/sustainable\\_fisheries/acl\\_monitoring/recreational\\_sa/historical/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/recreational_sa/historical/index.html))



**Table 12.** Estimates of recreational catch (numbers of fish) of mutton snapper in East Florida by mode, 2010-2014.

Year	Mode	Number of fish			Percent caught
		Harvested	Released	Total caught	
2010	Shore	8,754	6,607	15,361	10.3%
	For-Hire	12,584	6,394	18,978	12.7%
	Private/Rental	76,549	38,191	114,740	77.0%
	All	97,887	51,192	149,079	100.0%
2011	Shore	3,728	964	4,692	8.6%
	For-Hire	10,639	1,558	12,197	22.4%
	Private/Rental	24,189	13,295	37,484	68.9%
	All	38,556	15,817	54,373	100.0%
2012	Shore	763	63,383	64,146	46.7%
	For-Hire	7,616	1,217	8,833	6.4%
	Private/Rental	34,753	29,628	64,381	46.9%
	All	43,132	94,228	137,360	100.0%
2013	Shore	3,564	20,002	23,566	12.7%
	For-Hire	8,081	7,547	15,628	8.4%
	Private/Rental	52,672	93,276	145,948	78.8%
	All	64,317	120,825	185,142	100.0%
2014	Shore	781	14,281	15,062	5.4%
	For-Hire	9,364	7,160	16,524	5.9%
	Private/Rental	80,736	167,958	248,694	88.7%
	All	90,881	189,399	280,280	100.0%
Average	Shore	3,518	21,047	24,565	15.2%
	For-Hire	9,657	4,775	14,432	9.0%
	Private/Rental	53,780	68,470	122,249	75.8%
	All	66,955	94,292	161,247	100.0%

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division March 28, 2016.

**-Effort (in number of angler trips)**

- Target effort- trips where a species was a primary or secondary target
- Catch effort- trips where a species was caught, regardless of whether or not it was kept
- Trips estimates broken down by state and by mode (charter, private/rental, shore)
- Headboat effort (in number of angler days) by state

EXAMPLES:

**Table 13.** Hogfish recreational catch trips, by mode and state, 2010-2014\*.

<b>Year</b>	<b>Florida</b>	<b>North Carolina</b>	<b>South Carolina**</b>	<b>Total</b>
<b>Shore Mode</b>				
2010	327	263	0	590
2011	0	900	0	900
2012	1,458	0	0	1,458
2013	294	0	0	294
2014	1,329	3,080	0	4,409
Average	682	849	0	1,530
<b>Charter Mode</b>				
2010	814	35	15	864
2011	1,491	0	0	1,491
2012	1,402	89	0	1,491
2013	2,998	243	0	3,241
2014	4,030	0	0	4,030
Average	2,147	73	3	2,223
<b>Private/Rental Mode</b>				
2010	16,926	872	758	18,555
2011	13,519	499	0	14,017
2012	27,686	686	0	28,372
2013	28,080	387	0	28,467
2014	28,561	0	0	28,558
Average	22,954	489	152	23,594
<b>All Modes</b>				
2010	18,067	1,170	773	20,009
2011	15,009	1,398	0	16,408
2012	30,545	775	0	31,321
2013	31,372	630	0	32,002
2014	33,918	3,080	0	36,998
Average	25,782	1,411	155	27,348

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

\*There were no hogfish catch trips estimated for Georgia.

\*\*2010 estimates were expanded from only two intercepted trips. There were no intercepted hogfish catch trips in South Carolina for other years.

Note: Effort estimates have been post-stratified to include Monroe County, FL.

**Table 14.** Headboat angler days and percent distribution by state (2010-2014).

	Angler Days			Percent Distribution		
	Florida/Georgia	North Carolina	South Carolina	Florida/Georgia	North Carolina	South Carolina
<b>2010</b>	123,662	21,071	44,951	65.2%	11.1%	23.7%
<b>2011</b>	124,041	18,457	44,645	66.3%	9.9%	23.9%
<b>2012</b>	139,623	20,766	41,003	69.3%	10.3%	20.4%
<b>2013</b>	165,679	20,547	40,963	72.9%	9.0%	18.0%
<b>2014</b>	195,890	22,691	42,025	75.2%	8.7%	16.1%
<b>Average</b>	149,779	20,706	42,717	70.3%	9.7%	20.0%

Source: NMFS SRHS.

**-Economic Value**

- Willingness to pay per fish harvested
  - If a value estimate is not available for a species, information may be given for a similar or substitute species.
- Net operating revenue per charter and headboat angler trip

EXAMPLE:

“Participation, effort, and harvest are indicators of the value of saltwater recreational fishing. However, a more specific indicator of value is the satisfaction that anglers experience over and above their costs of fishing. The monetary value of this satisfaction is referred to as consumer surplus (CS). The value or benefit derived from the recreational experience is dependent on several quality determinants, which include fish size, catch success rate, and the number of fish kept. These variables help determine the value of a fishing trip and influence total demand for recreational fishing trips.

Direct estimates of the CS for hogfish are not currently available. There are, however, estimates for snapper and grouper species in general. Haab et al. (2012) estimated the CS (willingness to pay (WTP) for one additional fish caught and kept) for snappers and groupers in the southeastern U.S. using four separate econometric modeling techniques. It is assumed that snapper is a better proxy for hogfish than grouper<sup>3</sup>; however, any CS estimates derived for hogfish using snapper as a proxy should be viewed as ballpark estimates only. The finite mixture model, which takes into account variation in the preferences of fishermen, had the best prediction rates of the four models. The WTP for an additional snapper (excluding red snapper) estimated by this model was \$12.37 (2014 dollars<sup>4</sup>) with a 95% confidence interval (CI) of \$8.25 to \$17.87. This value may seem low and may be strongly influenced by the pooling effect

<sup>3</sup> The average recreational harvest weight of hogfish, commonly referred to as “hog snapper,” in the South Atlantic is more comparable to the general species included in the snapper estimates from Haab et. al (2012) than the grouper species, which are typically much larger.

<sup>4</sup> Estimates converted to 2014 dollars using the 2014 annual Consumer Price Index (CPI) for all US urban consumers provided by the Bureau of Labor and Statistics (BLS) (<http://www.bls.gov/data/>).

inherent to the model in which it was estimated. The WTP for an additional snapper from the mixed-logit model was higher at \$30.25 (2014 dollars) with a 95% CI of \$20.62 to \$39.87. Haab et. al (2012) focused on hook-and-line trips, whereas spear trips account for the majority of recreational hogfish landings in the FLE/FLK region, so this higher snapper WTP may be a better proxy for hogfish.

For the sake of comparison, the WTP for an additional red snapper, as estimated by Haab et. al (2012) using the finite mixture model, was \$140.23 (2014 dollars) with a 95% CI of \$119.61 to \$166.35. The WTP for an additional grouper was estimated by the same model to be \$134.73 (2014 dollars) with a 95% CI of \$120.98 to \$151.23. Another study estimated the value of the consumer surplus for catching and keeping a second grouper on an angler trip at approximately \$103 (2014 dollars) with a 95% CI of plus or minus 8% and lower thereafter (approximately \$69 for a third grouper, \$51 for a fourth grouper, and \$40 for a fifth grouper) (Carter and Liese 2012). Additionally, this study estimated the value of harvesting a second red snapper at approximately \$81 (2014 dollars) with a 95% CI of plus or minus 9% and lower thereafter. No estimates were provided for other snapper species.

The foregoing estimates of economic value should not be confused with economic impacts associated with recreational fishing expenditures. Although expenditures for a specific good or service may represent a proxy or lower bound of value (a person would not logically pay more for something than it was worth to them), they do not represent the net value (benefits minus cost), nor the change in value associated with a change in the fishing experience.

With regards to for-hire businesses, economic value can be measured by producer surplus (PS) per passenger trip (the amount of money that a vessel owner earns in excess of the cost of providing the trip). Estimates of the PS per for-hire passenger trip are not available. Instead, net operating revenue (NOR), which is the return used to pay all labor wages, returns to capital, and owner profits, is used as a proxy for PS. For the South Atlantic region, estimated NOR values are \$163 (2014 dollars) per charter angler trip and \$44 per headboat angler trip (C. Liese, NMFS SEFSC, pers. comm.)<sup>5</sup>.

---

<sup>5</sup> Estimates were converted to 2014 dollars using the 2014 annual CPI for all US urban consumers provided by the BLS (<http://www.bls.gov/data/>).

**-Economic impacts of recreational fishing activity**

- Uses I/O model based on target trip expenditures to estimate jobs, income impacts, value added, and sales impacts.
  - Does not include durable goods expenditures

**EXAMPLE:**

**Table 15.** Summary of hogfish target trips (2010 through 2014 average) and associated business activity (2014 dollars)\*. Output and value added impacts are not additive.

	<b>East Florida</b>	<b>North Carolina</b>
	<b>Private/Rental Mode</b>	
Target Trips	18,602	147
Output Impact	\$967,360	\$12,392
Value Added Impact	\$544,606	\$7,025
Jobs	8	0
	<b>Charter Mode</b>	
Target Trips	420	0
Output Impact	\$334,777	\$0
Value Added Impact	\$220,338	\$0
Jobs	3	0
	<b>All Modes</b>	
Target Trips	19,022	147
Output Impact	\$1,302,136	\$12,392
Value Added Impact	\$764,944	\$7,025
Jobs	11	0

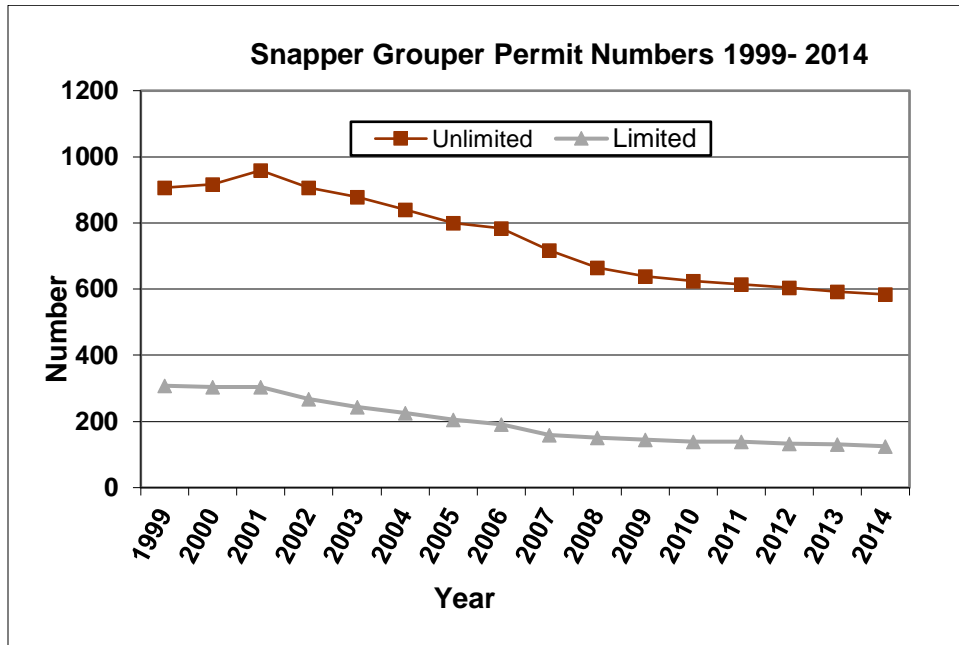
\*There were no hogfish target trips estimated for Georgia or South Carolina and none for the shore mode.

Source: effort data from MRIP; economic impact results calculated by NMFS SERO using the model developed for NMFS (2011b).

## Social Components: Commercial Sector

### -Number of commercial permits

- By permit type (if applicable)

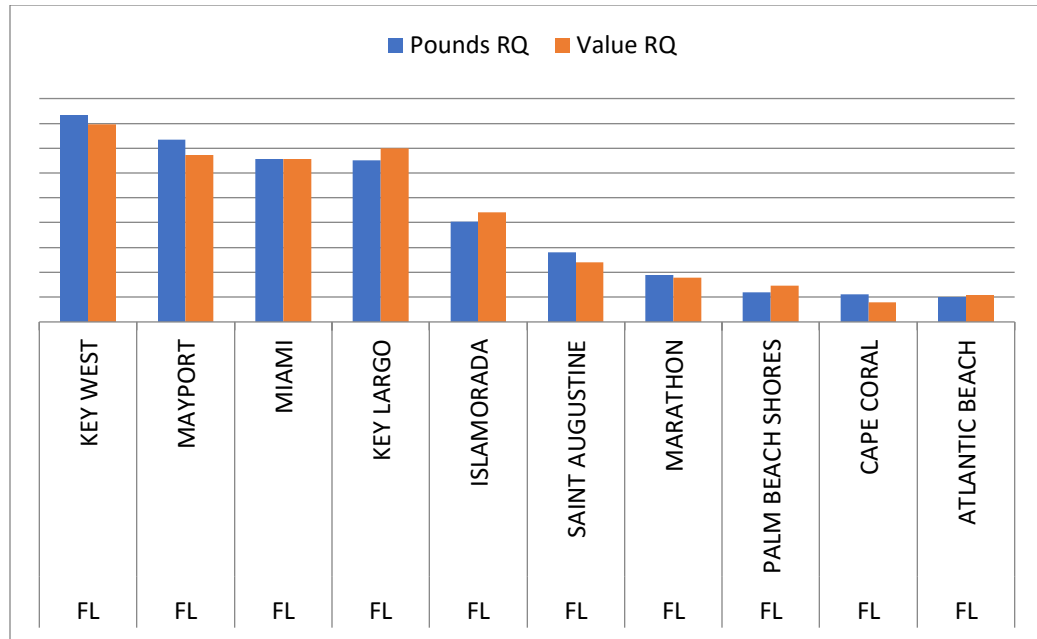


**Figure 6.** Snapper grouper Unlimited and 225-pound trip limit permits 1999-2014.

Source: NMFS SERO Permits (2015).

### -Top commercial fishing communities

- Ranked by regional quotient (RQ) based on landings (pounds and ex-vessel value) of the species being examined
- Ranked by vessel local quotient
  - A vessel local quotient is the amount of hogfish harvested by a vessel out of all species harvested within a year and averaged here by community. This helps show which communities may be most impacted by a change in access to the species being examined
- Ranked by regional quotient (RQ) based on commercial fishing engagement and reliance
  - Commercial fishing engagement uses the absolute numbers of permits, landings and value, while commercial fishing reliance includes many of the same variables as engagement, but divides by population to give an indication of the per capita impact of this activity.



**Figure.7.** Top ten South Atlantic communities ranked by pounds and value regional of quotient (RQ) of mutton snapper.

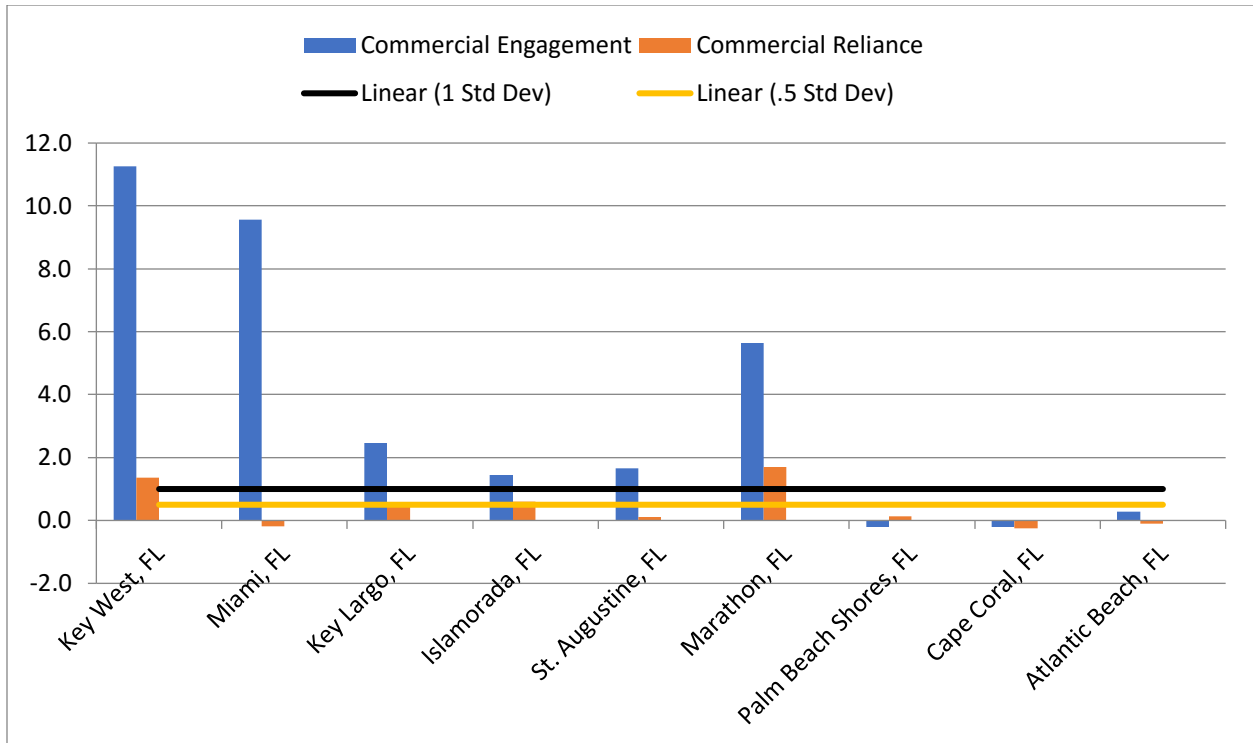
The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.

Source: SERO, Community ALS 2014.

**Table 16.** Average 2012 Vessel Local Quotient by Community

Community	Average Vessel LQ	Number of Vessels
Big Pine Key, FL	0.1196	7
Little Torch Key, FL	0.1031	3
Key West, FL	0.0611	27
Little River, SC	0.0519	9
Conch Key, FL	0.0416	3
Jacksonville, FL	0.0341	7
Murrells Inlet, SC	0.0115	6
Miami, FL	0.0102	7
Southport, NC	0.0049	11
Tavernier, FL	0.0046	5

--



**Figure 8.** Commercial engagement and reliance for South Atlantic mutton snapper fishing communities.

Source: SERO, Social Indicators Database (2012).

**- Effects on fishing portfolios and multi-species fishery participation**

- Includes a primarily qualitative discussion of potential effects of management changes for a species on fishermen who participate in multiple fisheries throughout the year
- Discussion on potential effort shifts if access to a species is restricted

**- Effects on consumers, restaurants and fish houses**

- For species that are locally popular for restaurants and consumers
- Discussion of species tied to a local cuisine/ tourism.



## Social Components: Recreational Sector

### -For-hire permit numbers

- **By region or community**

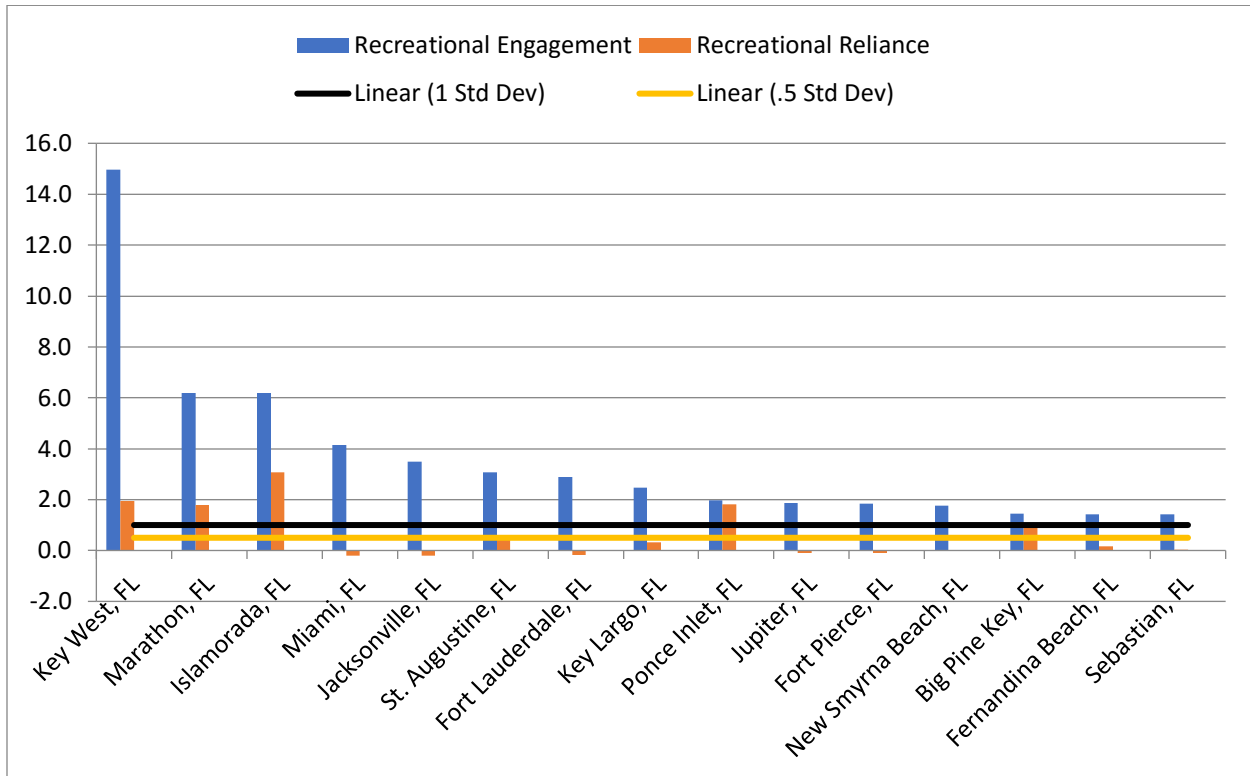
- Identifies those communities in the South Atlantic that have a high number of for-hire vessels and that same number divided by the community's population. Both ranks are averaged to understand the importance of for-hire fishing to that community.

**Table 17.** South Atlantic Communities Average Rank by For-hire Permits and For-hire Permits per Population.

State	Community	Number of For-hire Permits	Number of Permits Rank	Permits per Population Rank	Average Rank
NC	Manteo	24	6	2	4
FL	Islamorada	36	3	8	5.5
NC	Hatteras	14	11	1	6
FL	Marathon	44	2	11	6.5
FL	Key West	118	1	16	8.5
NC	Atlantic Beach	13	13	6	9.5
FL	Key Colony Beach	9	16	3	9.5
FL	Ponce Inlet	14	11	17	14
NC	Calabash	9	16	13	14.5
SC	Murrells Inlet	16	9	24	16.5
FL	Duck Key	6	28	5	16.5
NC	Wanchese	8	20	15	17.5
SC	Little River	15	10	27	18.5
NC	Nags Head	8	20	20	20
FL	Cudjoe Key	7	25	18	21.5
FL	Tavernier	7	25	19	22
NC	Morehead City	9	16	31	23.5
FL	Cape Canaveral	9	16	33	24.5
NC	Wrightsville Beach	6	28	22	25
NC	Southport	6	28	25	26.5
NC	Holden Beach	3	41	12	26.5
SC	Hilton Head Island	19	8	46	27
NC	Carolina Beach	7	25	30	27.5
FL	Key Largo	8	20	36	28
NC	Topsail Beach	2	47	9	28

**-Top recreational fishing communities**

- Ranked by regional quotient (RQ) based on recreational fishing engagement and reliance
  - Demonstrates where recreational fishing likely plays a prominent role in the local economy.



**Figure 9.** Top 15 Florida recreational fishing communities’ engagement and reliance. Source: SERO, Social Indicators Database (2012).

**- Broad social benefits/costs of habitat conservation and protected species**

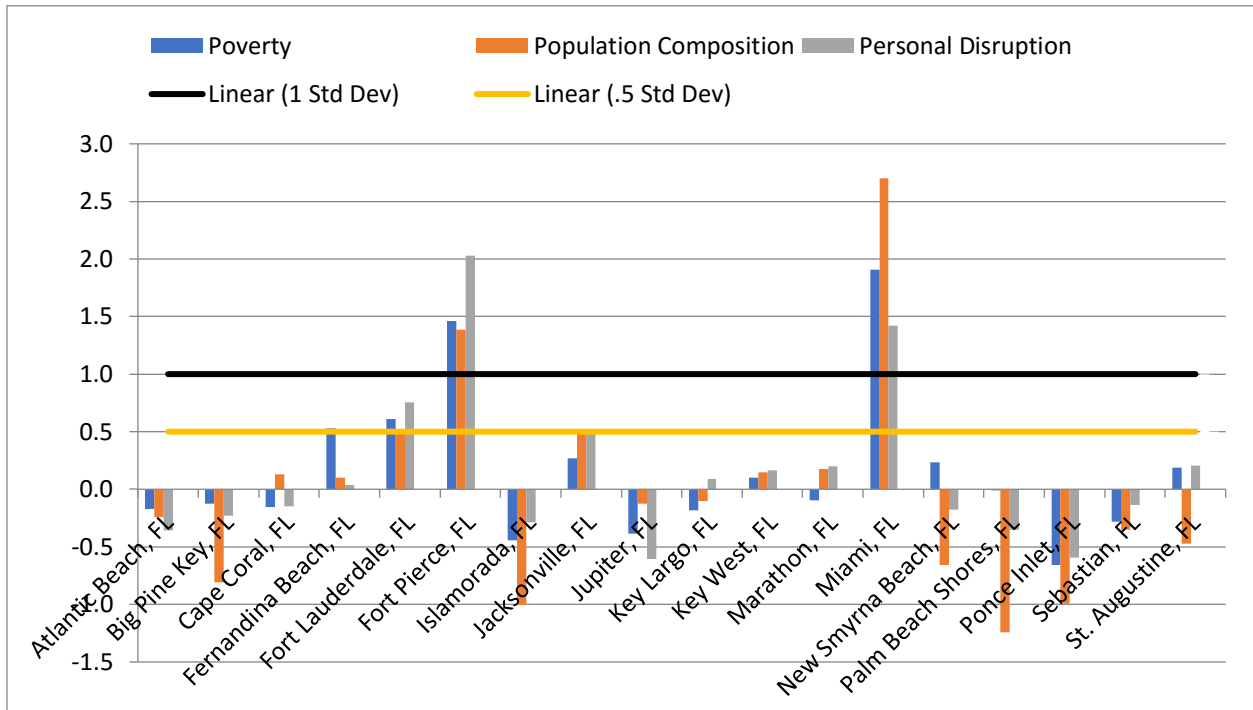
- Includes a primarily qualitative discussion of broad social effects of how conservation of habitat and endangered/threatened species can produce societal benefits by maintaining the aesthetic, economic, scientific, and historical value to the U.S. and citizens.

**Social Components: Combined Sectors**

**-Environmental justice considerations**

- Social vulnerability indices for communities with high commercial and recreational fishing engagement
  - Poverty
  - Personal disruption
  - Population composition
    - “To evaluate where EJ concerns might exist, a suite of social vulnerability indices have been developed. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community’s vulnerability. Indicators

such as increased poverty rates for different groups, more single female-headed households and households with children under the age of 5, disruptions such as higher separation rates, higher crime rates and unemployment all are signs of populations experiencing vulnerabilities. These vulnerabilities signify that it may be difficult for someone living in these communities to recover from significant social disruption that might stem from a change in their ability to work or maintain a certain income level.”



**Figure 10.** Social vulnerability indices for top commercial and recreational communities. Source: SERO, Social Indicators Database (2012).

**Upcoming efforts:**

- Tie in information where available on “land based” component of fisheries where data are available. This could include information on seafood dealers, retailers, or tackle shops.

**Questions for the SEP:**

- One of the goals of the new FEP is to include information that is relatively simple to update in order to easily keep the document relevant to the current status of the fisheries for a species. Also, these sections are often used as a baseline to estimate the economic and social effects of fishery management actions. With this in mind, is there other readily available social or economic data that the SEP would suggest including in the FEP update?
- Does the social and economic information provided in FMPs represent the best readily available information to profile a species or fishery?