Fishery length, angler effort: How they relate

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Table 2

Estimates of harvest of red snapper (*Lutjanus campechanus*) by private recreational anglers who used 6 public access boat launches on the coast of Alabama during the federal seasons of the fishery for red snapper from 2012 through 2017. Standard errors of the mean are given in parentheses after mean values. In 2017, anglers could fish 2 seasons, one long and another short.

Season	Season length (d)	Mean wind speed (m/s)	Mean no. of boat launches per day	Mean no. of anglers per day	Total no. of angler trips per season	Mean catch per angler (no. of individuals)	Harvest (no. of individuals)	Mean weight (kg)	Harvest (kg)	Daily harvest (kg)
2012	40	5.49 (0.12)	291 (32)	504 (83)	20,160	1.65 (0.08)	33,264	4.36 (0.17)	145,300	3632
2013	28	4.95 (0.08)	199 (30)	690 (109)	19,327	1.32 (0.12)	25,511	4.37 (0.11)	111,668	3988
2014	9	4.60 (0.05)	405 (26)	1097 (88)	9876	1.74 (0.02)	17,184	3.60 (0.06)	61,889	6876
2015	10	2.23 (0.02)	419 (17)	1444 (70)	14,438	1.67 (0.04)	24,111	3.14 (0.13)	75,791	7579
2016	11	3.16 (0.03)	396 (16)	1194 (55)	13,136	1.66 (0.02)	21,805	3.36 (0.09)	73,193	6654
2017 (short)	3	2.91 (0.02)	530 (25)	1648 (98)	4945	1.69 (0.03)	8357	4.25 (0.17)	35,594	11,865
2017 (long)	39	2.90 (0.02)	337 (9)	1029 (31)	40,136	1.77 (0.02)	71,040	3.02 (0.09)	214,608	5503

Estimates of harvest of red snapper (Lutjanus campechanus) by private recreational anglers who used 6 public access boatlaunches on the coast of Alabama during the federal seasons of the fishery for red snapper from 2012 through 2017. Standarderrors of the mean are given in parentheses after mean values. In 2017, anglers could fish 2 seasons, one long andanother short. Credit: Fisheries Ecology Lab

A new study suggests reducing the number of fishing days in a season doesn't reduce catch as much as some would predict. The publication, Compression and relaxation of fishing effort in response to changes in length of fishing season for red snapper (*Lutjanus campechanus*) in the northern Gulf of Mexico, was released by NOAA in the November 2018 *National Fishery Bulletin*.

In the publication, Dr. Sean Powers and Kevin Anson compared fishery season lengths and angler response from 2012 to 2017.

Dr. Powers is a Senior Marine Scientist at the Dauphin Island Sea Lab and chair of the Department of Marine Sciences at the University of South Alabama. Anson works with the Alabama Department of Conservation and Natural Resources as the Chief of Fisheries in the Marine Resources Division.

Recreational fishing of red snapper is a hot topic along coastal Alabama. In an effort to rebuild stocks, agency managers reduced the number of days in a red snapper fishing season during the last decade. This is a common practice in the fisheries industry when a stock is labeled as overfished.

The belief is the shortened fishery window will decrease the harvest which will allow the stock to rebuild over time. Until now, data referencing the recreational angler response to this method was lacking.

Powers and Anson compiled data assessing the effect of variable season length on the daily fishing effort between 2012 and 2017. The data produced from reviewing video observations measures the number of boat launches per day, the number of anglers per boat, and the number of anglers per day.

Since 2012, law enforcement has monitored six public boat launches in coastal Alabama which have the highest offshore fishing trip activity. During the federal recreational fishery for red snapper, video recordings are archived and available for analysis of angler effort. These recordings were used to create the dataset presented in this publication.

Fishing for Red Snapper

Restrictive regulations on the fishing of red snapper by NOAA Fisheries began nearly a decade ago in the private recreational fishery. This group routinely exceeded its share of the annual catch limit.

Each year, the annual catch limit is split between commercial and recreational sectors first. Then, the recreational sector is split between federal for-hire and private recreational, including state licensed only for-hire vessels, sub-sectors.

The recreational fishery of red snapper has decreased from 194 days in 2007 to 11 days in 2016. Public frustration reached its high point in 2017 when the National Marine Fisheries Service initially set the season at just three days.

An appeal by state management agencies from all five Gulf of Mexico states to the Secretary of the U.S. Department of Commerce resulted in a second season of 39 days for 2017 with a few restrictions. The extended federal season was open on Friday, Saturdays, Sundays and federal holidays from June 16 to September 4. In exchange for the extension, most of the Gulf states agreed to close state waters outside of the federal season for the remainder of 2017.

The two seasons of 2017 provided a unique opportunity for researchers to assess angler effort during two seasons of different lengths. Anglers had no expectation of a second season until days before the announcement, taking out the anticipation of more days to fish for red snapper recreationally beyond the three days originally set for the season.

Analyzing the Data

With video footage in hand and analysts trained and in place to watch the video, protocols were put in place based on season length and random

observation. Five-minute intervals were randomly chosen from the footage recorded between 5 a.m. and 10:59 p.m. The number of intervals analyzed was based on the length of the season.

When watching the video, analysts counted boat launches and anglers per boat at each public boat ramp and categorized the fishing vessels based on size, design, and type of fishing gear. For a boat launch to be counted, the analyst had to observe the boat coming off the trailer during the 5-minute interval. Analysts could observe the boat outside the 5-minute interval to count the number of potential anglers.

All videos were viewed by two analysts and the observations were averaged and were then transformed into hourly estimates for each day.

Angler Effort: In Conclusion

The analyses recorded in this publication indicate that rebuilding a fishery can become more challenging when the seasons are shortened. During a compressed season, anglers will increase daily effort. The team of analysts observed the highest daily effort during the shortest season on record of three days in 2017.

The last-minute addition of the long season, 39 days, in 2017 offered a chance to see if angler effort would relax with more days available. Daily effort did decrease in the number of boat launches and anglers per day, as you can see referenced in the table above. Analysts also found that higher wind speeds could decrease daily effort.

In a nutshell, the results of this study indicate that as annual catch limits increase, and longer seasons are warranted, effort compression may be relaxed and afford even longer seasons.

A longer season would also provide safety for anglers compared to short

seasons, as they are more likely to feel less pressure to fish on bad weather days.

More information: Sean P. Powers et al, Compression and relaxation of fishing effort in response to changes in length of fishing season for red snapper (Lutjanus campechanus) in the northern Gulf of Mexico, *Fishery Bulletin* (2018). DOI: 10.7755/FB.117.1.1

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