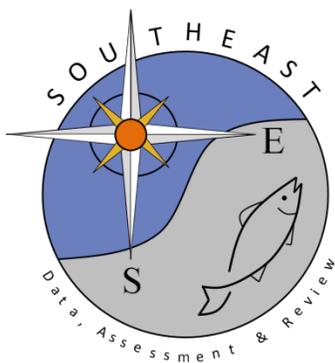


# **Problems with Headboat Index of Abundance Confounds Use in SEDAR 41 Red Snapper**

David Nelson, Jimmy Hull, and Peter Barile

SEDAR41-DW40

Submitted: 27 August 2014



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# **Problems with Headboat Index of Abundance Confounds Use in SEDAR 41 Red Snapper**

David Nelson, Jimmy Hull and Peter Barile

Southeastern Fisheries Association- East Coast Fisheries Section

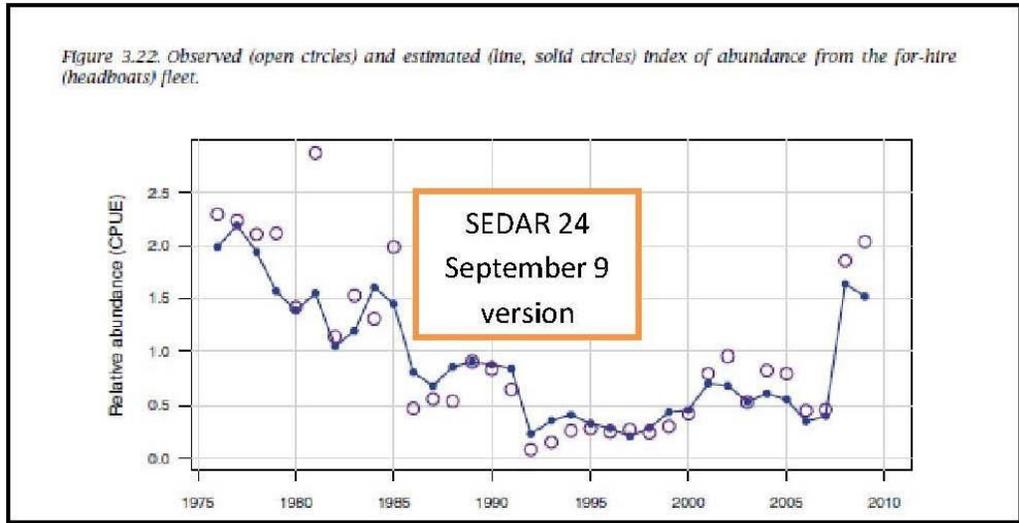
## **Summary**

The data supporting the Southeast Region Headboat Survey (SRHS) from the mid 1970's through the early 1990's was generated using a volunteer survey that is replete with "recall bias." Captains from headboats, during this period, as reported in the attached testimonials, stated that data contributing to the SRHS before the 1990's is not credible; and therefore, we do not recommend the use of pre-1992 HB CPUE data in the development of indices of abundance for use in the Red snapper stock assessment Red snapper in SEDAR 41. Also, we report, below, that drastic regulatory changes in the Red Snapper fishery, in 1992 and 2010, appreciably altered headboat fishing practices, specifically, targeting of species, throughout the SRHS region. These regulatory changes, and subsequent changes in headboat fishing behavior, significantly confound the CPUE indices of abundance for all species from this fishery. In summary, these findings support the use of a SRHS index of abundance in SEDAR 41 Red Snapper only from 1992 to 2009. Future assessments utilizing the SRHS index of abundance must take into account these issues presented, here.

## **A long-term index of abundance with a legacy of "issues"**

The Southeast Region Headboat Survey (SRHS) has been used by the NMFS-SEFSC to establish a long-term fisheries-dependent index of abundance for several important fisheries species in the southeastern United States. Specifically, it has been inappropriately used to assess long-term changes in abundances of Black sea bass, Snowy grouper, and Red snapper in SEDAR 24. While the long-term duration of this index provides a significant temporal indicator of changes in abundance for many fisheries species, it suffers with confounding issues of: 1) veracity of data reported by the fishery to the SEFSC, and 2) changes in fishing behavior in the headboat fishery resulting from a fluctuating "regulatory" environment that confounds CPUE of many species evaluated by this index.

In the early portion of the index (see figure, below), i.e. 1976 to 1991, there is considerable inter-annual variability in CPUE, with high CV's, when "recall bias" was a significant problem in reporting of data (see attached appendix). Specifically, data was "re-collected" by headboat operators, and their crew, and reported to the SEFSC on a volunteer basis where fishermen were literally "paid for their participation" and were not aware that these data would be used as a true scientific metric of abundance of species from this fishery. When these reporting issues were resolved by the early 1990's, annual variability (CVs) of CPUE was markedly reduced. We, therefore, suggest that SEDAR 41 utilize only the portion of the index from 1992 to 2009, when it constituted the "best scientific information available." Alternatively, with the caveats presented here, the headboat CPUE data before 1992 cannot be considered credible CPUE data, when compared relative to the post-1992 CPUE data.



**Headboat Fishing Practices Change with Fishery Regulations**

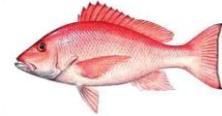
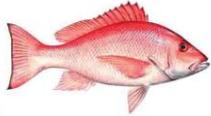
Regulatory changes in state and federal fisheries have caused headboat and commercial captains to change their fishing practices over time. Size limits, trip limits, and fishery closures have had a significant impact on targeting and effort of species in the south Atlantic. In the headboat fishery, the primary objective is to land a significant quantity of desirable fish species for customers. This increases customer satisfaction and therefore supports repeat business opportunity in the fishery. Fisheries regulation that impacted the ability of headboats to land this historically targeted species, Red snapper, then resulted in the targeting of alternative species. This fishing behavior change occurred, in the headboat fishery, industry-wide, as a result of two major rule changes that impacted the headboat fishery for Red snapper in 1992 and 2010. In 1992, the Red snapper size limit was increased to 20 inches and in 2010 the red snapper fishery was closed, and a limited 2-3 weekend fishing season opened in July of 2012, 2013 and 2014.

The 20 inch size limit significantly changed the headboat fishery behavior, as the majority of red snapper caught by headboats before 1992 were under 20 inches (see SEDAR 24). With this change, customers on headboats could land a red snapper under 20 inches, but then it had to be released. This was a frustrating experience for customers who payed money to land fish that should be desirable for consumption. The captain and crew were also impacted by this regulation because gratuity resulting from customer satisfaction and fish cleaning service, offered after the trip, declined when targeting under-sized Red snapper. For all involved in this fishery, customer, captain, and crew, catch and release of Red snapper was a difficult impact to the headboat fishing business. Over the long run the fishery adjusted and adapted by targeting other fish species, but in the near-term (ca. 1992) it drastically changed headboat fishing behavior. This change can be observed in the marked decline in the headboat index of abundance from 1991 to 1992, when Red snapper changed from being a targeted species, to largely a bycatch species- in one year. For this reason, the SRHS index must be split between 1991 and 1992.

Because Red snapper, under 20 inches, were no longer an option to land in this fishery as of 1992, headboats began targeting alternative species, including, but not limited to: Vermilion snapper, Black sea bass, Gray Triggerfish, Banded rudderfish, Amberjack, Flounder, and small sharks, among others. As these fish became the target of headboat captains, the fishery began to target areas (habitat) where they could catch these alternative target species and avoid areas with Red snapper. Other reasons for avoiding Red snapper during this period included: an interest in not wasting valuable fishing time, bait, and tackle considerations. Along with avoiding certain areas, these captains also adjusted their tackle to target other species. For example, a lighter tackle would be used for smaller-sized species, such as Vermilion snapper or Black sea bass, or a different bait from that which had been used to target Red snapper. Another change in gear also included using larger hooks to avoid the red snapper less than 20 inches.

A major regulation that impacted headboat fishing in the south Atlantic was the January 2010 closure of the Red snapper fishery. The changes in the headboat fishery included fishing behavior to avoid areas (reef habitat) where Red Snapper would appear in landings or discards. This change in fishing behavior included the total avoidance of all areas that have any localized abundance of red snapper. Fishing for alternative species also resulted in changing tackle to completely avoid all red snapper, regardless of size. In summary, the regulatory size change to 20 inches in 1992, and the closure of the Red snapper fishery in the south Atlantic in 2010 drastically affected the headboat recreational fishery performance.

# SOUTHEASTERN FISHERIES ASSOCIATION (SFA)



## EAST COAST FISHERIES SECTION (ECFS)

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[http://www.sefsc.noaa.gov/sedar/download/Abundance%20Indices%20Workshop%20Document\\_final.pdf?id=DOCUMENT](http://www.sefsc.noaa.gov/sedar/download/Abundance%20Indices%20Workshop%20Document_final.pdf?id=DOCUMENT)

PDF page 21 of 106 pages

"Self-reported data will be limited in reliability by the honesty and accuracy of the reporting fishers. While completely dishonest reporting may be rare and limited to a few individuals, it is difficult to quantify. More problematic is inaccurate reporting, which may be more widespread and is also difficult to quantify..."

[http://www.sefsc.noaa.gov/sedar/download/SEDAR25-RW01%20comment%20compilation%206-6-11\\_AW.pdf?id=DOCUMENT](http://www.sefsc.noaa.gov/sedar/download/SEDAR25-RW01%20comment%20compilation%206-6-11_AW.pdf?id=DOCUMENT)

PDF pages 16 to 20 of 22 pages

"HEADBOAT EXPERTS COMMENT SECTION"

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05/04/11

To Whom It May Concern:

I am a 65 year old charter head boat fishing captain. I have fished many different boats in the south Atlantic area off Daytona since 1964. Today, I am the captain of the 125 passenger head boat Pastime Princess out of New Smyrna. On an almost daily bases, the passengers are catching between 1000 and 2000 Black Sea Bass plus other variety of fish., From all my years of fishing experience the Sea Bass are more plentiful now than ever before. We do not target the Sea Bass because of the inability to keep these fish, however, the fish are so abundant that each fishing spot we arrive on has a plethora of Sea Bass biting our hooks.

Your scientist have stated that the Sea Bass Population was much greater in the 1980's than today's population. I have to take exception to this data and would like to be informed of the captains and the name of the boats that this information was gathered from during that time. I was never made aware of or given any log books to record my catches in the 1980's and I know of no other captains who were recording catches before 1992.

Each day of fishing, all the captains are in radio contact comparing their catches and discussing the temperament of different fishing spots. To the man, each one of us say, "The Sea Bass are here and they are very abundant"!

Respectfully,

George Locke  
1883 Magnolia Av.  
South Daytona, Fl. 32119  
(386)547-8478

# SOUTHEASTERN FISHERIES ASSOCIATION (SFA)



## EAST COAST FISHERIES SECTION (ECFS)

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5/15/11

To: SEDAR 25 Assessment Panel

My name is Captain Paul Nelson II and I have been fishing northeast Florida since 1955 and mostly on headboats from 1968 to 2009. I worked from 1971 to 2009 aboard the headboats out of the Critter fleet dock in Ponce Inlet.

The data sheets that were filled out starting in the late 1970's were not taken very seriously at first. In fact it was common practice to fill out sheets weeks and even months after trips had taken place. This fact should be given careful consideration as far as it being used to create information about sea bass before the 1990's.

As regulations came into effect in the late 1980's and 1990's the information was taken more seriously and I would say became much more credible.

Thank you,  
Captain Paul Nelson II 386-767-0745

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5/16/11

To: SEDAR 25 Assessment Panel  
updated 5-24-11 SEDAR25-RW01

10

My name is Captain Bob Stone and I have been fishing northeast Florida since the 1940's beginning with my father the late Captain Jake Stone. The majority of my experience is aboard for-hire headboats out of Ponce Inlet and I currently run a charter boat. From 1973 to the early 1990's I was the captain aboard the various Critter Fleet headboats. During this time there were data sheets that were supposed to be filled out each trip by the first mate or captain. Unfortunately, these sheets were not taken seriously at all and I have firsthand knowledge of mates filling them out who were not even aboard the day that the trip took place. In fact, it was very common practice to fall behind by a month or more and then fill them out all at once, making up landings from 3-4 weeks prior to filling out the report.

There should be no credibility given to these early data sheets, as the information contained in them was gathered in a suspect manner.

Thank you,  
Captain Bob Stone 386-767-3041

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CAPT. STACY IV, INC.  
CAPT. STACY VII, INC.  
CAPT. STACY FISHING CENTER  
416 ATLANTIC BEACH CAUSEWAY  
ATLANTIC BEACH, NC 28512  
800.533.9417  
May 18, 2011

TO WHOM IT MAY CONCERN,  
This letter is in reference to the Black Sea Bass Fishery.

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# SOUTHEASTERN FISHERIES ASSOCIATION (SFA)



## EAST COAST FISHERIES SECTION (ECFS)

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I have been in the headboat, charter, and commercial fishery for over 50 years.

On the headboat from the early sixties to the mid eighties we used electric reels and targeted the offshore deep water bottom species of the South Atlantic. These fish included Red snapper, Grouper, Trigger Fish, Vermilion Snapper, and Silver Snapper.

It was not feasible to fish inshore because our customers wanted deep water fish. We did not target Black Sea Bass.

After regulations started to get tighter we took the electric reels off and started to fish

More inshore bottom and target the Black Sea Bass. I have seen an increase in the size and number of sea bass coming to shore.

The Black Sea Bass is our main target species for our half day trips and when

The snapper and grouper season is closed it gets us through that season.

Since the recent closure of the Sea Bass fishery our half day business has been cut by 75%. This is a loss

that cannot be made up. We still have boat payments, insurance, repairs and maintenance, dock rent and not to mention the lost income to our employees.

Capt." Sonny Davis"

Capt. Leslie Maurice Davis Sr.

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From: [captgeorgejr@pastimeprincess.com](mailto:captgeorgejr@pastimeprincess.com)

Sent: 5/20/2011 2:12:24 P.M. Eastern Daylight Time

Subj: Re: Black sea bass questions

updated 5-24-11 SEDAR25-RW01

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"We have found that in many cases the daily reports were filled out by crew members rather than the captain and that they sometimes did not get filled out for weeks if not months, and then the crew would try to catch up from memory. In some cases the mate filling out the material may not have made some of the earlier trips but still filled out a report. "

That is a 100% accurate statement based on my 5 years here on the East coast of Florida running a headboat.

Captain George Richford

Pastime Princess

New Smyrna Beach, Florida

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Subject: Re: Black sea bass questions

Date: 5/20/2011 11:11:20 P.M. Eastern Daylight Time

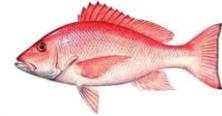
From: [fishzack@comcast.net](mailto:fishzack@comcast.net)

The one point that I would like to make is that for charter/head boats off Georgia, I don't feel the discard percentages are even close to being accurate because of the way we fish.

When we pull up on a reef to catch sea bass, the bigger ones usually bite first and when the size of the fish goes down we move to another reef to keep from 'killing' the reef. Therefore the discards are very low and sometimes even zero.

Again, just my thoughts and I hope this helps.

# SOUTHEASTERN FISHERIES ASSOCIATION (SFA)



## EAST COAST FISHERIES SECTION (ECFS)

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Zack Bowen

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Subject: Re: Headboats and black sea bass

Date: 5/20/2011 11:13:22 P.M. Eastern Daylight Time

From: [ocpolk@bellsouth.net](mailto:ocpolk@bellsouth.net)

Hi, my name is O.C. Polk I have fished the coast of S.C. since 1968, both on private and worked headboats.

My first head-boat was the Gulfstream II out of Shem Creek Mt. Pleasant in 1969. I worked as a mate then in 1975 as Captain aboard it and later in the 80's on the Carolina Clipper. The vessels were licensed for 49 and 65 persons. While in the early days we caught lots of fish, there was no survey or paper work that I remember filing out. We either did not bother or were not approached to do so. In the 80's at some point it became part of the permit process to fill those reports out, they were due monthly and it was usually up to the mate to fill them, sometimes weeks later or the end of the month before they were done. They were thought of as a bother and were not a very accurate catch record. When limits were put on the different fish the owner/ captain wanted the maximum allowed fish per person to be recorded. Easy book keeping but not a true sample of the catch.

I hope this info will help if you have any questions feel free to call or mail me.

O.C. 843. 718. 8793

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Sent: 5/23/2011 12:42:20 P.M. Eastern Daylight Time

Subj: Boat Statement Captain George Strate

updated 5-24-11 SEDAR25-RW01

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I ran a party boat for the Navy from 1973 to 1979. During this time I never filled out catch records. I started running the Miss Mayport in 1979. I never filled out catch records until 1983. They would pay us one dollar per sheet. I let my crew fill them out and give them the money. Sometimes they would go weeks then fill them out. Many other Captains did the same thing. Several years ago a new NMFS representative was inconsistent in collecting the headboat survey records, sometimes waiting for over two months. I heard he left the NMFS for another job a few years ago. So we would sometimes go months before filling them out. Now we have a new guy who comes once a week. My records are filled out by myself every day. We feel that the headboat catch records are correct now during the past two years. During this transition phase of employees the NMFS representatives supervisor called me and checked the veracity of dates of when the headboat had been fishing. I told them that the several dates asked about were days the headboat was at the dock and did not go fishing.

Captain George Strate 904-821-1301

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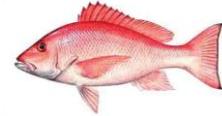
May 23, 2011

To: SEDAR Assessment and Data Workshop Panelists

My name is Captain Lee Carver and I have been running headboats since 1979 from Ponce Inlet, Florida. From 1979 to 1985 I was the captain with the Snow White headboat fleet. Between 1985 and 1998 I operated miscellaneous headboats, and charter boats. From 1998-2011, I have been a captain with the Critter Fleet, which operates large headboats out of Ponce Inlet.

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# SOUTHEASTERN FISHERIES ASSOCIATION (SFA)



## EAST COAST FISHERIES SECTION (ECFS)

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During my time I operated headboats my crew was tasked with filling out the headboat daily logbook surveys. In the earlier years the crew got paid a small amount for each logbook sheet filled out. Commonly they would wait several weeks before filling out the daily logbook sheets. They would fill in the days fishing by actual date, but their memory of what was really caught each day was not accurate. More recently the headboat observer program was implemented. Florida state employees funded by the National Marine Fisheries Service (NMFS) would take a trip on my headboat about once a month. As an observer they do an accurate job.

For many years other NMFS representatives were responsible on a regular basis (at least once a month or more) for meeting the headboats upon return to the dock. Their job was to take biological samples (otoliths etc.) from the fish species landed, measure the fish sampled and collect the headboat daily logbook sheets.

Unfortunately the NMFS did not take the samples, measurements and surveys in a timely way as required for several years. During one year in particular the NMFS representative did not even show up for most of the spring and summer season to collect the samples and surveys. I understand the NMFS area for the sampling that includes Ponce Inlet headboats is from Brunswick, Georgia to Sebastian, Florida. Since 2010 the NMFS problem was fixed to gather the samples and survey sheets as required in a timely way.

Because of the voluntary nature of the headboat survey in the early years and the recent failures of the NMFS to collect samples and the logbooks in a timely way, I feel very troubled by the headboat information being used for the black sea bass stock assessment. Parts of the headboat survey were inaccurate in how the logbooks were filled out and the NMFS failures described above caused serious problems.

Black sea bass fishing in recent years has been as good or better than I have ever seen since I began running headboats.

updated 5-24-11 SEDAR25-RW01

13

Captain Lee Carver

386-299-1679

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Subject:

Re: Black sea bass questions

Date: 5/23/2011 4:14:40 P.M. Eastern Daylight Time

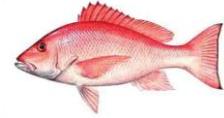
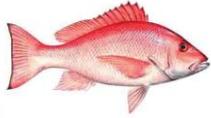
From: [steveamicks@aol.com](mailto:steveamicks@aol.com)

Before 1992 I was not required to fill out daily log books since i was only fishing groups of 6 and 10. Although i did keep logs for my personal use.

But starting in 1992 i started running my 20 passenger trips and started the daily fishing log sheets. My routine was to fill out my fishing log daily and then transfer the data to the headboat sheets and send them in to NMFS.

My log sheets are very accurate as far as fish kept due needing to know what went into the fish box because of the bag limits. However as far as the discards of blackseabass there is no way to keep an accurate count of what is being released. I cant do it on a small headboat with 10 to 20 anglers on it. In

# SOUTHEASTERN FISHERIES ASSOCIATION (SFA)



## EAST COAST FISHERIES SECTION (ECFS)

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fact on my reporting i do write in the discard column for blackseabass i write "MANY" . it is unscientific but its the best i can do.

As far as carrying observers, yes I have, but only in recent years. And at a rate of perhaps 5 to 6 times a year. Mostly since we had started working on red snapper. We have a good working relationship with Ga. DNR. IN fact we had an observer on the boat this week

As far as accuracy of what an observer is recording is questionable. I have been counting fish for many years and i am not sure that an observer sees the same thing i do on the same trip with a small group of anglers . I will give you an example. I asked the observer on this last trip how many vermillion snapper did we release today with 10 anglers fishing and his response was that he felt that 5 of the anglers released 3 to 5 vs a piece. so he thought we released about 25 vs.! I was surprised that he had not counted all of them and he said well no we observe only the anglers that are closet and than use expansion to figure out how many were actually released!!!!

This is with 10 anglers. and i was thinking we released as many as we kept which was 50. Imagine the accuracy when trying to count discards with 40 to 50 anglers.

So accuracy is questionable at best under the best of conditions . More so in the early years than now. I have not studied my fishing logs as far as blackseabass goes like i did with red snapper, but in general terms i feel it safe to say that as far as numbers of blackseabass we were catching off georgia thru the 90,s it was pretty strong. But we did see numbers drop after say 2000 and on. Until the recent increase the last few seasons. This is just seat of the pants comments because i havent looked at it closely

So it surprises me that blackseabass supposedly crashed in 1992?

i hope this helps and if you have any further questions that you think of please let me  
thanks steve

Jimmy Hull, Chairman  
SFA ECFS