

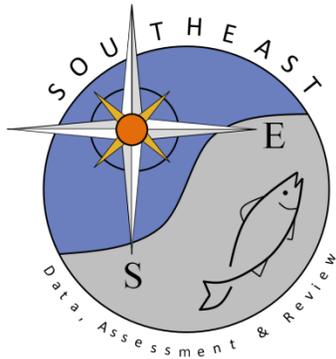
Red snapper mini-season ad-hoc working group report

Red Snapper Mini-Season Ad-hoc Working Group

SEDAR41-DW27

Submitted: 23 July 2014

*There is a corresponding Excel document that accompanies this working paper titled, "Rsnap_miniseason_12_13_22Jul14_7.23.2014".



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Meetings: Two phone calls held on July 3rd and July 15th, 2014.

Our goal for this working group was to inform the decision that the recreational workgroup will have to make about the landings and discards to report for red snapper during the mini-seasons in 2012 and 2013. The 2012 mini-season was six days long: 9/14-9/16 & 9/21-9/23. The 2013 mini-season was three days long: 8/23-8/25. Two documents provided by NMFS-SEFSC (SEDAR41-RD10 and SEDAR41-RD13) list the landings and discards by state by data source. MRIP is currently used in place of MRFSS values from 2004 to present, but since the regulations stemming from SEDAR 24 are based on MRFSS numbers, MRFSS numbers are provided in those two removals documents (SEDAR41-RD10 and 13). The key issue is that MRIP was not designed to capture short pulses of fishing, but rather to capture 2-month intervals (waves) of landings, discards, and effort. When a short opening occurs in a fishery, it is unlikely that MRIP will capture the event during its random sampling. If MRIP does capture the event in terms of catch rate, the event will be scaled up by effort in that wave. A supplementary source of data is available from a study conducted in Florida, and there are also data from each state partner.

During our first call, we created a list of priorities:

- 1) List all available data to characterize mini-seasons for red snapper.
 - FL Study (SEDAR41-RD14 and 15)
 - MRIP data query including number of trips
 - GA study (SEDAR41-RD26)
 - SC private boat (2012-2013, needs to be compiled)
- 2) Provide MRIP documentation of how effort is calculated.
- 3) Provide error estimates of the MRIP and FL study estimates.
- 4) Tabulate and QA/QC data by MRIP and all state partners.

- 5) Define the merits and deficiencies of each data source (uncertainties, coverage, effort characterization, etc.).
- 6) Determine whether there are further data needs.
- 7) Provide advice as to which landings and discard estimates should be used and why.

An individual was assigned from each state to provide and check data, and everyone was able to contribute to the discussion and debate on two calls.

Here are the outcomes of each bullet point.

List all available data to characterize mini-seasons for red snapper.

- FL Study (SEDAR41-RD14 and 15)
 - MRIP data query including number of trips
 - GA study (SEDAR41-RD26)
 - SC private boat (2012-2013) and carcass collections.
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Provide MRIP documentation of how effort is calculated.

The Coastal Household Telephone Survey (CHTS) is a bi-monthly (wave), random digit dial (RDD) telephone survey designed to estimate the number of recreational shore and private boat fishing trips taken by residents of coastal counties. Each year, the CHTS will be conducted for six, two-month reference waves in 17 states bordering the Atlantic Coast and Gulf of Mexico, with the exception of Texas, as well as in Puerto Rico and Hawaii. The target population for the CHTS is the population of full-time, residential households located in the coastal counties of the survey states¹.

Sampling Design

The CHTS utilizes a list-assisted RDD approach. The sample frame for the survey includes all telephone numbers in hundred-banks (the set of numbers with the same first eight digits) that contain at least one number listed in the white pages directory. Consequently, the frame includes both listed and unlisted telephone numbers. The sample frame excludes telephone exchanges that are known to be assigned only to cell phones and is updated each wave to ensure that working blocks of telephone numbers are not inappropriately excluded.

¹ In general, coastal counties are those within 25 miles of ocean coastline (including coastlines of major bays or estuaries). In the South Atlantic and Gulf of Mexico during May through October coastal counties are those within 50 miles of the coast. Sampling in North Carolina is increased to counties within 50 miles of the coast during November to April and within 100 miles of the coast during May through October. Data collected from the complementary Access-Point Angler Intercept Survey (OMB Control No. 0648-0659) demonstrate that 70-90% of saltwater fishing trips are taken by residents of the counties covered by the CHTS.

Sampling for the CHTS is stratified by state and county. For each wave and stratum, a simple random sample of telephone numbers is selected from county-specific sample frames. Within a wave and state, sample is allocated among counties in proportion to the square root of the county population. This approach ensures that counties with small populations receive sufficient sample to detect saltwater fishing activity. Following sampling, telephone numbers are pre-dialed to identify and eliminate non-working numbers. Approximately 85% of working numbers in the sample are loaded into the Computer Assisted Telephone Interviewing (CATI) system for dialing. The remaining 15% are held in reserve in the event that sample yields fall below expectations. Productivity of the sample is monitored throughout the data collection period, and additional sample is released as needed to complete the required number of interviews.

Data Collection Procedures

Data collection for the CHTS begins one-week prior to the end of each reference wave and continues for a period of two weeks. All interviews are conducted via a CATI system that automatically dials sampled telephone numbers, schedules call-back interviews, ensures that dialing protocols are satisfied for each sampled number, navigates the interview through complex skip patterns, and verifies suspect or illogical responses at the point of data entry.

Once a number has been loaded into the CATI system, a minimum of five contact attempts are made to categorize the number as an interview (partial or complete), nonrespondent, ineligible or unknown eligibility. Once dialed, each telephone number is allowed to ring five times before the number is classified as “no answer.” Telephone calls are distributed among weekend/weekday and day/evening, such that the following criteria are satisfied:

- Each number receives at least one weekday attempt and three night or weekend attempts. The time delineating day and night is 5 pm.
- At least one of the night-time attempts is also be a weekend attempt.
- Calling is completed between 8:00 and 9:00 PM local time for the geographic area being dialed.

Once a household has been contacted, the interviewer determines if any household residents participated in saltwater fishing during the reference period and then attempts to interview each individual angler to collect detailed information about recent saltwater fishing trips. In the event that interviews with all anglers within a household cannot be completed during the initial contact, up to five additional attempts are made to complete the interview. Appointment interviews are scheduled to facilitate the collection of complete household data. Proxy data are collected if an individual angler cannot be contacted after the five additional attempts.

Estimation Design

The estimation weights for the CHTS are formed in stages. The first stage is the creation of a base weight for the household, which is the inverse of the probability of selection of the telephone number. The second stage is the adjustment of the base weights for households with multiple telephone numbers. The third stage is a non-response adjustment. The fourth stage is the poststratification adjustment of the weights to estimates of household totals within the survey

area². These household-level weights implicitly include nonresponse and undercoverage adjustments, resulting, for example, from the exclusion of non-landline households from the sample frame. Estimates of total fishing effort by residents of coastal counties (\hat{Y}_c) are produced using these poststratified household weights.

$$\hat{Y}_c = \sum_{h=1}^H \sum_{i=1}^{n_h} \omega_{hi}^* y_{hi}$$

where ω_{hi}^* and y_{hi} are the final, poststratified weight and reported number of recreational fishing trips, respectively, for household i of stratum h .

Total fishing effort (\hat{Y}_t) is estimated by multiplying coastal resident effort by correction factors derived from a complementary survey, the Access-Point Angler Intercept Survey (APAIS, OMB Control No. 0648-0659). Specifically, APAIS respondents are asked for their state and county of residence. CHTS estimates are then expanded by the ratio of total intercepted trips to intercepted trips taken by residents of coastal counties.

$$\hat{Y}_t = \hat{Y}_c \hat{R}$$

where $\hat{R} = \frac{\text{Total APAIS Intercepts}}{\text{APAIS Intercepts with Coastal Residents}}$.

Provide error estimates of the MRIP and FL study estimates and Tabulate and QA/QC data by MRIP and all state partners.

These steps were carried out and the table is attached at the end of the document. The state data descriptions are as follows:

North Carolina

In September 2012, the N.C. Division of Marine Fisheries (NCDMF) began a pilot carcass collection program in conjunction with the limited re-opening of the South Atlantic red snapper fishery. The goal of the pilot program was to collect biological information needed for the SEDAR 41 stock assessment. A secondary goal was to incentivize angler participation in data collection efforts. The pilot program focused solely on obtaining data from the recreational fishery, as federal port samplers and state

² Estimates provided by Nielsen Company, Inc.

biologists collect biological information from commercial trips. Data collection efforts from the pilot program continued during the 2013 limited re-opening and are planned for the 2014 re-opening as well. NCDMF recently received grant funding to expand the pilot program statewide during the 2014/2015 fiscal year. The primary focus will be enhanced data collection for state-managed recreational species of importance, but NCDMF will continue to use the carcass program for red snapper data collection so long as the existing harvest management approach is employed.

Methods

NCDMF staff placed eight carcass freezers at locations throughout the coastal region based on focal points of recreational fishing effort (Table 1). The northernmost freezer location was Hatteras, NC while the southernmost was Calabash, NC (Figure 1). Freezer locations were identical for 2012 and 2013. Each location was stocked with a supply of heavy duty plastic bags, bag ties, catch cards (Figures 2 and 3) and informational pamphlets (explaining program purpose, fish identification, etc.). Catch cards included information on fishing mode, water depth and water body and were modified slightly from 2012 to 2013 in anticipation of using the cards for a variety of species and water bodies. Instructional posters were placed on top of or near freezers to guide anglers regarding the appropriate protocol for bagging a carcass and filling out catch cards (completed cards were to be included in the bag with the fish). As an incentive to participate in the program, anglers who donated carcasses and provided a name and address on the catch card were issued a citation certificate, as well as limited edition gear (e.g., a fish towel or drink coozie). NCDMF recreational port samplers maintained freezer supplies and transported fish from freezers to regional offices for processing by biologists. Otoliths were removed, carcass lengths measured, and information from catch cards were transferred to data sheets for entry into the NCDMF Biological Database. All otoliths and an electronic file with associated database entries for the carcasses were sent to staff at the NOAA Fisheries Beaufort Laboratory for aging.

An online survey available through the NC RecFish website (www.NCRecFish.com) was provided for anglers who were unable or unwilling to donate a carcass to report their catch. Very few surveys were received and none of this information was incorporated into reports of harvest.

Results

The results from the 2012 and 2013 carcass programs are shown in Table 2. In 2012, a total of 82 carcasses were collected: 40 from charterboats, 39 from headboats and three (3) from private vessels. In 2013, a total of 34 carcasses were collected: two (2) from charter boats, 29 from headboats and three (3) from private vessels. Eleven catch cards were submitted by anglers without an associated carcass (not included in the totals above and in Table 2). NCDMF recreational samplers also tracked fish that were observed, but no carcass was donated. In 2012, these fish were tracked by mode: three (3) from charter boats; six (6) to ten (10) from headboats.

In 2013, the fish were tracked by region: two (2) from the northern region; 15 from the central region. Based on 2013 data in the biological database and on catch cards, it is likely that the two fish from the northern region were from charter boats, and the 15 fish from the central region were from headboats.

Discussion

NCDMF recreational port samplers made concerted efforts to promote the carcass program and encourage anglers to participate. Consequently, carcasses donated by private anglers and charter vessels cannot be considered random with regard to being representative of the catch. The majority of carcasses were donated by anglers fishing from headboats who were sampled by NOAA recreational

port agents according to standard protocol, and can therefore be considered random. Efforts were made to coordinate between NOAA Fisheries headboat samplers and NCDMF recreational port samplers assigned to headboats. Anglers whose fish were sampled by NOAA Fisheries headboat staff were directed to NCDMF staff to fill out catch cards and donate carcasses if they so desired. In those instances, the remaining otolith from donated carcass which was later extracted by NCDMF biologists, as NOAA Fisheries samplers typically remove only one otolith from sampled fish. These duplicates were noted in the NCDMF Biological Database during entry and can therefore be excluded from the total number of samples used in age and growth analyses.

Based on submission of catch cards without carcasses, it is evident that there was still some confusion regarding the process and the requirement to donate a carcass in conjunction with a catch card in order to receive an award citation. NCDMF recreational samplers reported being contacted by anglers inquiring about citations that they had not received, and confirmed that several of these individuals had turned in catch cards without carcasses.

It also appears that many anglers are either unwilling or too impatient to fill out a card and donate a carcass, despite the incentive of an award citation. As this program continues, NCDMF will seek feedback from anglers, charter and headboat captains, and other staff regarding improvements that will maximize the number of carcasses collected.

The tables and figures that accompany this description can be found in SEDAR 41-DW21.

South Carolina

SCDNR Red Snapper Mini-Season data collection

Charter State Survey (landings and discards): Data from charter boats were collected via the SCDNR charter logbook program. These data should theoretically contain all red snapper caught by 6-pack charter captains. The South Carolina Department of Natural Resources (SCDNR) issues three types of charter vessel licenses: V1 (vessels carrying six or fewer passengers), V2 (vessels carrying 7 to 49 passengers), and V3 (vessels carrying 50 or more passengers). In 1993, SCDNR's Marine Resources Division (MRD) initiated a mandatory logbook reporting system for all charter vessels to collect basic catch and effort data. Under state law, vessel owners/operators purchasing South Carolina Charter Vessel Licenses (V1, V2, or V3) and carrying fishermen on a for-hire basis are required to submit trip level reports of their fishing activity in waters off of SC. Logbook reports are submitted by mail or fax to the SCDNR Fisheries Statistics section monthly. Reporting compliance is tracked by staff, and charter vessel owners/operators failing to submit reports can be charged with a misdemeanor. The charterboat logbook program is a complete census and should theoretically represent the total catch and effort of the charterboat trips in waters off of SC.

Private State Survey (landings): These are the numbers of carcasses collected either by drop-off to the department directly or via the freezer program (SEDAR41-DW18). In 2012 these landings also include the number of red snapper seen in the State Finfish Survey (SFS) as well. The SFS was the recreational private angler survey the SCDNR performed before taking over the SC MRIP sampling effort in 2013. The private landings given from SC do not represent any estimate of catch and do not include any effort information. They are simply a record of the number of specimens that were sampled.

Private State Survey (discards): These are the reported discards from the SFS survey in 2012. As with the private state survey landings, these values do not represent any sort of catch estimate and should not be used as such. They are just a record of what was witnessed.

Georgia

Georgia Red Snapper Catch & Effort Data Collection during Mini-Seasons, 2012-2013

Sampling during the 2012 mini-season (recreational/for-hire September 14-16, and 21-23):

- Dockside biological sampling - During every day in which trips occurred, staff collected biological data, as well as general fishing location, from fish landed at one dock at which two for-hire captains had previously participated extensively in voluntary red snapper research. Data elements included centerline length, whole weight, sex and otoliths.
- Carcass program – As part of the existing GADNR carcass program, anglers could donate filleted red snapper carcasses to any of the 11 freezers throughout Georgia’s six coastal counties. Additionally, three private marinas agreed to freeze carcasses, and a freezer which could be accessed by anglers was added to the Brunswick DNR campus. Data elements included trip date and general fishing location, as well as biological data (centerline length, sex and otoliths).
- Telephone survey of federally permitted for-hire captains - Staff conducted telephone interviews with the Georgia for-hire captains who actively fished with and possessed the federal snapper-grouper CH/HB permit to collect catch and effort data. Calls were placed on the Mondays following the fishing weekend, and repeated attempts were made throughout the week until the captains were reached. Data elements included whether the trip did or did not target red snapper, number of anglers, and number of fish released and harvested.
- Voluntary angler electronic catch survey (via Survey Monkey) – Anglers were asked to complete a voluntary electronic catch survey for any fishing trips that targeted red snapper (including trips that targeted but did not catch red snapper). Each completion of a survey represented one vessel trip targeting red snapper. Data elements included trip date and duration, trip departure location, depth fished, number of anglers, number and size of harvested and released fish, and whether the harvested fish were donated to a GADNR carcass freezer.
- Publicity – Anglers were invited to participate in the carcass program and electronic survey via email (for those licensed anglers that indicated participation in saltwater fishing, or had asked to be notified about issues related to saltwater fishing) as well as notification through a press release and posting on the CRD website. As incentive to participate, a gift card to Bass Pro Shops was given to one angler from each data collection program (donated a carcass or completed a voluntary angler survey). Temporary decals were also placed on the carcass freezers to increase awareness of the red snapper fishing mini-season and request for angler participation.
- No biological data were collected from the commercial fishery.

Biological samples (including otoliths) from 64 fish via dockside and carcass program sampling:

- 40 whole for-hire fish (1HB and 5 CH vessel trips)
- 24 carcasses

Telephone survey interviewing 20 active federally permitted captains:

- 16 for-hire trips (2 HB and 14 CH)
- 100 angler trips (24 HB and 76 CH)
- 57 harvested (5 HB and 52 CH)
- 25 released (all 25 CH) (most trips with released fish also had full harvest bag limit)

Voluntary angler electronic catch survey data collection:

- 8 private boat mode vessel trips
- 31 angler trips
- 22 harvested (14 with reported lengths)
- 6 released (length ranges reported on all released fish; most trips with released fish also had full harvest bag limit)
- Average depth ~105 feet

Total PR harvest = 37 = 22 voluntary angler survey + 15 carcasses NOT also reported through the angler survey (i.e., of the total 24 collected through the carcass program, anglers reported through the voluntary survey that they had donated 9 to carcass freezers, leaving 15 additional carcasses as known harvest in addition to the 22 reported through the angler survey)

From the for-hire dockside sampling, carcass program, telephone calls to permitted captains, and recreational anglers reporting via Survey Monkey, no fishing trips occurred on 9/14/12 and one occurred on 9/15/14 due to high wind conditions.

Sampling during the 2013 mini-season (recreational/for-hire August 23-25; commercial August 26-October 8):

Unless otherwise noted, data collection programs in 2013 were identical to those in 2012:

- Dockside biological sampling – In addition to sampling at one for-hire fishing dock, sampling also occurred at one commercial fishing dock.
- Publicity – Letters were mailed to federally permitted for-hire captains prior to the opening of the mini-season to notify them of the various data collection methods through which they could volunteer to participate. In addition to the established carcass freezer locations, we offered to have DNR staff meet them at their marina if an alternate cooler

or freezer was available in which additional carcasses could be collected. As an incentive to participate, a gift card to Bass Pro Shops was given to one angler and one for-hire captain who donated a carcass.

Biological samples (including otoliths) from 91 fish via dockside and carcass program sampling:

- 28 whole for-hire fish (2 HB and 2 CH vessel trips)
- 21 gutted commercial fish (6 vessel trips)
- 42 carcasses

Telephone survey interviewing 22 active federally permitted captains:

- 11 for-hire trips (2 HB and 9 CH)
- 70 angler trips (23 HB and 47 CH)
- 42 harvested (14HB and 28 CH)
- 9 released (4HB and 5 CH)(most trips with released fish also had full harvest bag limit)

Voluntary angler electronic catch survey data collection:

- 13 private boat mode vessel trips
- 53 angler trips
- 41 harvested (37 with reported lengths)
- 13 released (length ranges reported on all 13 released fish; most trips with released fish also had full harvest bag limit)
- Average depth ~95 feet

Total PR harvest = 55 = 41 voluntary angler survey + 14 carcasses NOT also reported through the angler survey (i.e., of the total 42 collected through the carcass program, anglers reported through the voluntary survey that they had donated 28 to carcass freezers, leaving 14 additional carcasses as known harvest in addition to the 41 reported through the angler survey)

From the for-hire dockside sampling, carcass program, telephone calls to permitted captains, and recreational anglers reporting via Survey Monkey, no fishing trips occurred on 8/25 due to high wind conditions.

Florida

Red Snapper Mini-Season Estimates, Florida

FWC utilized complementary catch and effort surveys to directly sample the recreational boat-based offshore fishery operating off the Atlantic coast of Florida when recreational harvest of red snapper was

briefly permitted over three three-day weekends in 2012 and 2013. Complete methods for estimating effort and catch for both the private recreational fishery and the recreational charter fishery are described in reference documents submitted to the Data Workshop for SEDAR41 (SEDAR41-RD14, SEDAR41-RD15).

Florida Recreational Private Boat Effort and Catch

Sampling methods were designed to take advantage of the compressed nature of the harvest seasons and geographic bottlenecks that together serve to concentrate offshore fishing effort both temporally and spatially. The study area was the east coast of Florida from the state's border with Georgia south to Saint Lucie Inlet, and a total of nine inlets serve as navigable egress points to offshore fishing grounds in the Atlantic Ocean. St. Lucie Inlet is the southern limit for recreational access to fishing areas where red snapper may be targeted. Cumberland Sound defines the border between Florida and Georgia and fishing effort from this egress point may originate from either state.

To estimate the total number of directed red snapper trips from private recreational boats, two of the nine inlets in the study area were selected as reference inlets and monitored from land continuously during daylight hours from 7:00 am to 7:00 pm each day the fishery was open. For the remaining inlets, boat traffic was monitored for up to six hours during three separate days each season. A list of boating access sites located in the vicinity of each inlet from which private recreational boats embark on offshore trips was generated for the study area. The list included 54 public and privately operated boat ramps, marinas and dry dock facilities. A list of all possible site and day combinations was generated to randomly select intercept assignments.

During a scheduled intercept assignment, field staff arrived on site at 10:00 a.m. and remained until sunset or the site closed (whichever occurred first). As vessels returned from recreational boating trips in the Atlantic Ocean, the operator was interviewed to determine the time that the vessel exited through the inlet. These data were used to adjust inlet boat counts for trips that departed before sunrise or after sunset. The proportion of trip interviews where red snapper were intentionally targeted and/or caught (regardless of the intended target species) was used to determine the percentage of boats exiting through each inlet that were engaged in red snapper recreational fishing. The following additional information was collected during trip interviews for red snapper recreational fishing trips: 1) number of people in the party, 2) number of people that fished, 3) numbers of red snapper harvested and released for the party, 4) number of hours spent fishing, 5) the average depth fished (in feet, added in 2013), and 6) the minimum and maximum distance from shore (in miles) where fishing took place. If red snapper were harvested, the interviewer asked for permission to inspect fish and recorded the length (mm at the midline) and weight (in kg) and attempted to extract an otolith from each red snapper. Catch-per-unit effort was calculated at the boat trip level, and trip interview samples were weighted proportional to estimated fishing effort through each inlet.

Florida Recreational Charter Effort and Catch

A charter vessel directory that is actively maintained for the MRIP For-Hire Telephone Survey conducted in Florida was used to select all active charter vessels on the Atlantic Coast of Florida that may target red snapper during the 2012 and 2013 recreational mini-seasons. FWC attempted to contact each vessel

operator by telephone during the week following each weekend opening. Vessel operators were asked to report the number of charter trips that targeted and/or caught red snapper during each day of the weekend opening, the area fished, number of anglers per trip, and number of red snapper harvested and released per trip. Data were expanded to account for vessels that were either not contacted (after up to five attempts) or refused the survey.

Our next task was to define the merits and deficiencies of each data source (uncertainties, coverage, effort characterization, etc.)

The GA study

Pros: Represents GA (census of actively federally permitted S/G charter boat captains)

Cons: Anglers self-selected voluntary survey and low sample sizes.

MRIP

Pros: Captures the entire wave for the discards and provides unbiased estimates of landings, discards, and effort.

Cons: Although MRIP is unbiased, it is highly variable. It is not designed to capture small temporal scales (intercept rates very low or 0 during the mini-season). The catch rates during a mini-season are scaled up by wave-level effort.

FL Study

Pros: It directly targeted the mini-season to improve sample size (for catch and effort) in the short term, highly precise for Florida estimates during the mini-season.

Cons: The estimates are biased due to the small temporal scale of the study if used as an estimate of what occurs outside of the mini-season. The discard estimates are almost certainly an underestimate for the wave.

SC charterboat logbooks

Pro: Census of the charterboat fishing activity in SC.

Cons: Data are not validated and it is on a volunteer basis.

NC data were not discussed on the calls.

Our next task was to determine whether further data were needed to inform the decisions. The following is a synopsis of our discussions of the data available and whether other data should be compiled:

All MRIP intercepts in 2013 occurred during the mini-season. They came from separate boat parties scattered throughout the day. Location: county 31 (Duval)

The FL study sampled anglers at each of the 9 inlets that allow access to red snapper fishing. The study gathered effort data representing fishers from Jacksonville to Ft Pierce. The highest catch rates were observed in the north.

Question: What is the potential bias of each sample?

MRIP: 24-hour coverage with random design leads to low precision, but not a known bias. The total effort for the wave was applied to the mini-season catch rates by chance since all samples for that wave in 2013 occurred inside the mini-season. There may be a bias depending on what effort was observed, during the mini-season or not.

FL study: Observations start at dawn and miss any night time catch rates. Although rare, there are suspected night catches and catches outside of season.

Question: Is the difference in estimates between the FL study and MRIP catch rate or effort expansion?

Can catch rates be compared when there are small bag limits in place? The average number of anglers on board for the Florida study was larger than 2, and it was boat catch rate, not per angler catch rate.

Recommendation: Review other for hire (headboat, charterboat) data (in the same areas) to see how they changed during one mini-season to the next. Examine landings, effort, and catch rate (landings per unit of effort) information. Will not be comparable to private boat sector.

We compiled the average catch rates per angler and per boat in the Florida study region for headboat in numbers and added the table below.

Headboats in FL inlets	2012	2013
mean catch per angler	0.6	0.47
mean catch per boat	26	22.3
mean # of anglers	44	51

There was little discussion or consideration of discards between the two estimates. The discards must be estimated for the whole wave, and the FL study only covered the mini-season. The group consensus was to use MRIP for discard estimates.

For landings estimates, 2013 was the year that needed most attention. In 2012, no MRIP intercepts occurred in FL during that wave, let alone the mini-season. FL study estimates were taken to represent landings in that wave, although it was generally agreed upon that it was biased low due to the limited temporal coverage (SEDAR41-RD10). For 2013, there were private mode estimates from MRIP during the mini-season (17,463 fish) to compare with the estimates from the FL study (3993 fish). Because the estimates are so different in magnitude, the two estimates needed to be investigated further. In comparing the two survey designs, MRIP temporal coverage could have allowed for obtaining data throughout the wave and the 24 hour time period. In 2013, both surveys only captured positive red snapper data during day time

sampling and during the mini-season. **The crux of the issue is whether the red snapper catch rates are similar for both sampling programs in FL, and also whether the estimate of effort used to scale up the catch rates in FL incorporates effort not captured by the FL study.**

No clear recommendations were made by the working group at this time, but we have provided a solid place for the recreational working group to begin their discussions of this issue at the SEDAR 41 Data Workshop. All data compiled are in a spreadsheet on the ftp site for SEDAR 41 with a corresponding document name.