

# South Atlantic Red Snapper

- SSC ABC Recommendation
- Reductions required to end overfishing
- Effectiveness of Moratorium

# ABC Recommendation

- ABC determined by the Council's Rebuilding Strategy
- Frebuild for red snapper = 98% F30% SPR
- SSC recommended evaluating the rebuilding strategy for the short term ( 10 years) using the range of alternative headboat weights explored by the Review Panel
- Updated projections provided

# Range of ABC

Scenario	Discard 1000 LBS	Land 1000 LBS	Total 1000 lbs
Base	39	235	274
Weight .20	48	326	374
Weight .25	53	358	411
Weight .30	56	365	421
Range	48 to 56	326 to 365	374 to 421

Snapper-Grouper Attachment 5b. SEDAR 24 South Atlantic Red Snapper: Management quantities and projections requested by the SSC and SERO. SEFSC, Beaufort NC, November 2010

# Issue: Selectivity and Moratorium Effectiveness

- Imposing the moratorium changes the selectivity of fish killed.
- Selectivity directly influences reference point values and estimated  $F$ .
  - The  $F$  that returns 30% SPR changes as selectivity at age changes
- ABC under moratorium differs from ABC under harvest scenarios

# Required Reductions

- Comparison of 98%F30%SPR to Current F
  - At weight=0.30, required reduction is 70%
  - Range across weight options is 70-75%
- Moratorium projections – expected F versus target F, with 10% effort reduction
  - Moratorium does not end overfishing
  - Greater effort reduction may end overfishing
- Comparing ABC to expected landings
  - ABC > expected moratorium landings , but invalid since selectivities differ

# Interpreting Projections

- Moratorium projections not comparable to harvest projections (Attachment 5a)
- Moratorium projections and revised F30% SPR using moratorium methods suggest that moratorium and 10% effort reduction will not end overfishing.
- Greater effort reductions may end overfishing
- Considerable uncertainty in assessment and projections must be considered – analyses are not available to directly compare the past to the future

# Analytical Challenge

- Moratoriums notoriously hard to analyze
  - change selectivity
  - discard data quality
  - changes in behavior
  - avoidance
- Experimental component to such actions - expect to be able to evaluate performance with next assessment, likely in 3 years

# MORATORIUM EVALUATION

## SERO Decision Model

- Suggests moratorium will provide a 66% reduction (70% Needed)
- Accounts for effort reduction due to regulations (16, 17A, 17B)
- Suggests additional 4-9% reduction required to end overfishing

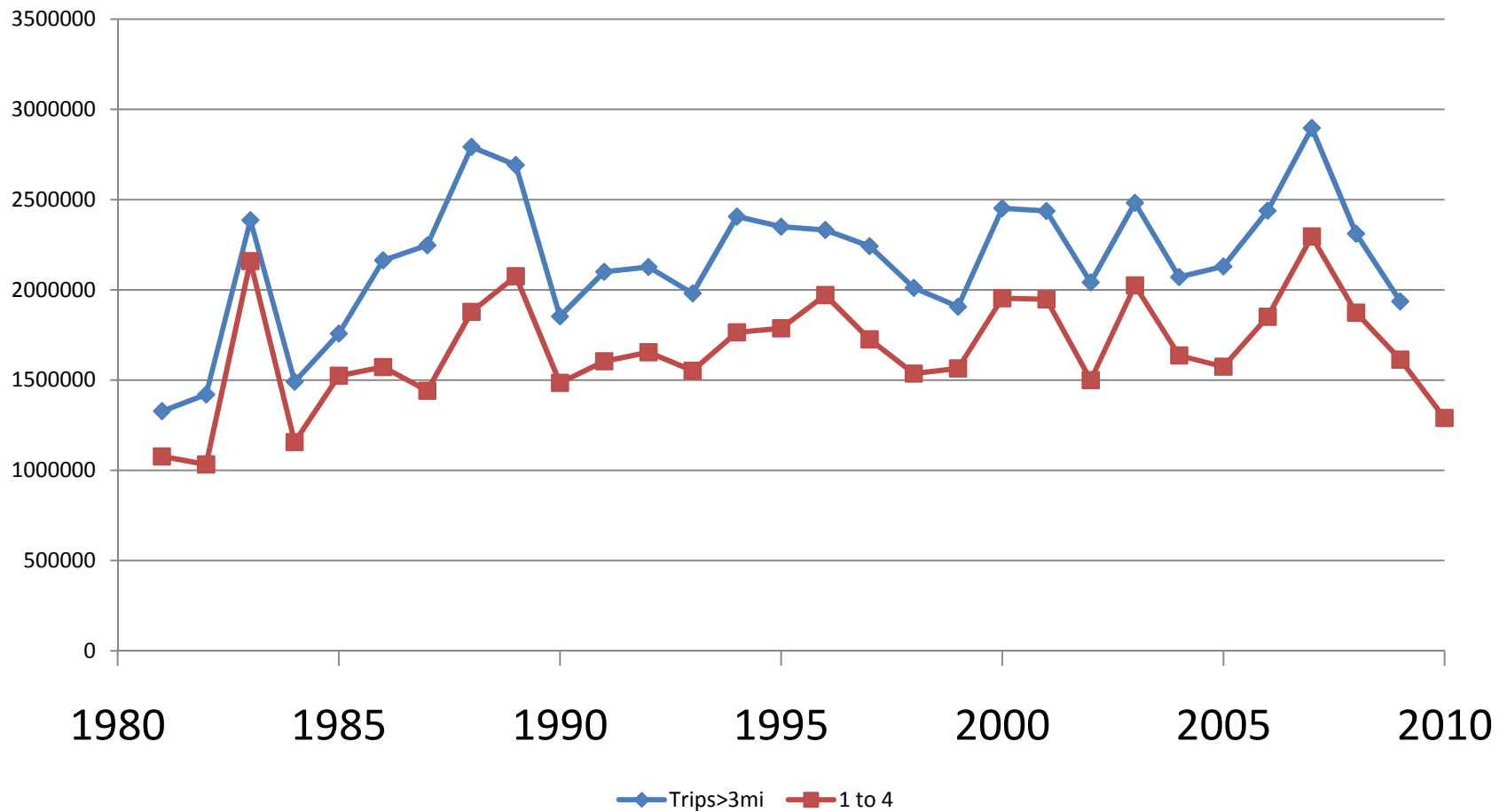


# MORATORIUM EVALUATION

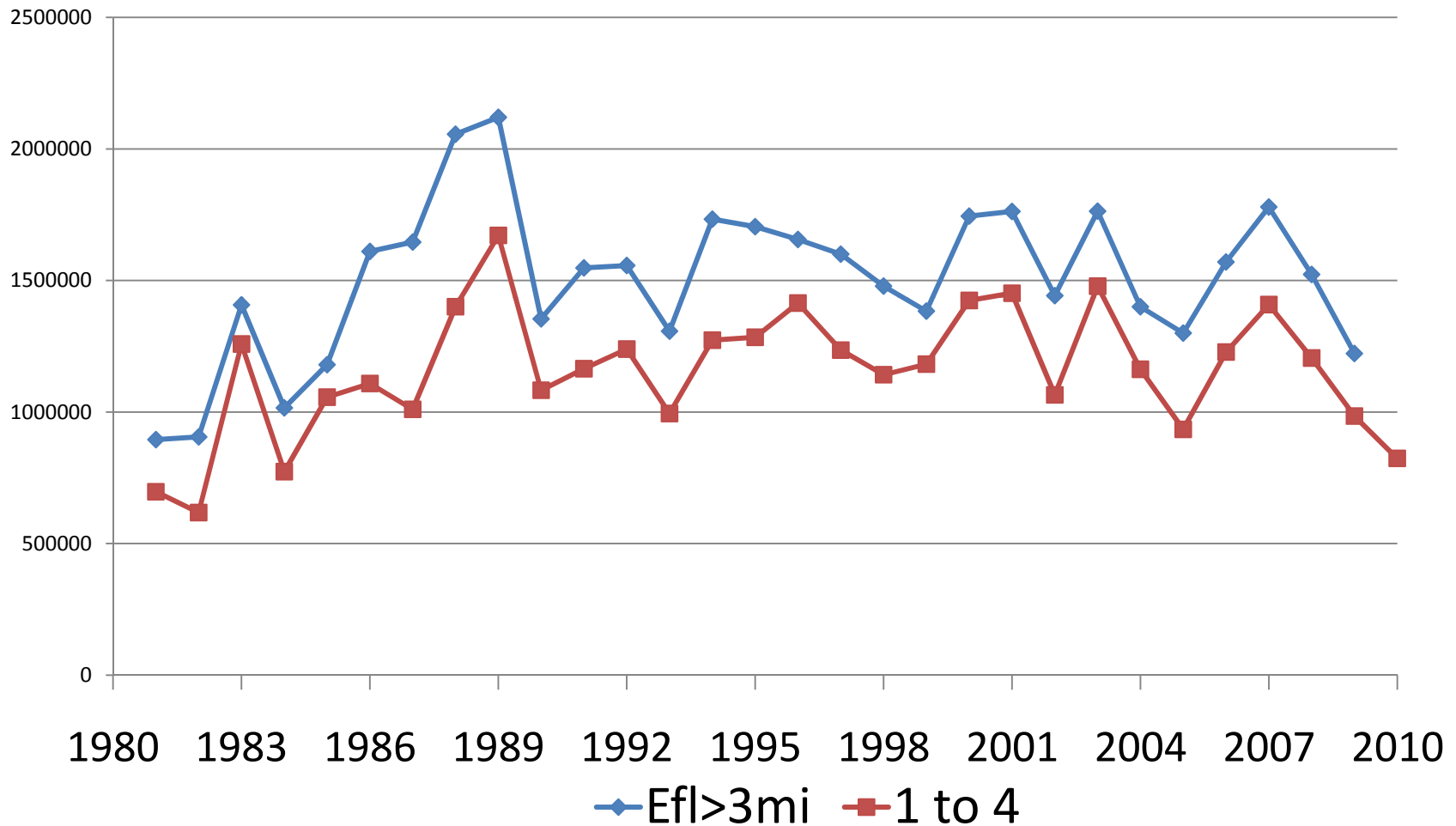
## EFFORT

- Fishermen report significant declines in effort. Is this reflected in the data?
- Has effort directed at red snapper declined?
- Available Data: MRFSS estimates for 2010 through Wave 4 (Jan – August)

# MRFSS TRIPS > 3 MILES



# East Florida, > 3 miles



# Moratorium Evaluation Effort

- Conclusion: Total MRFSS trips in Decline
  - 2010 is down 33% in EEZ region wide, compared to 2007-2009
  - 2010 is down 31% from the 07-09 average in East Florida
  - Reports from fishermen in the core red snapper area indicate declines up to 50%

# MORATORIUM EVALUATION

## Red Snapper Encounters

- Are fishermen encountering fewer red snapper, due to lower effort and avoidance?
- Available data: MRFSS, Waves 1 – 4.
- Private, Rental, Charter
- Types
  - A = Landed
  - B1= Discarded Dead
  - B2 = Discarded Alive

# MRFSS “Encounters” Red Snapper (A+B1+B2)

YEAR	1	2	3	4	total
2007	42,775	42,773	102,377	217,176	405,101
2008	107,601	72,414	130,713	78,881	389,609
2009	80,650	124,421	43,929	37,336	286,336
2010	11,437	9,952	31,469	14,911	67,769
Reduction from Base (07-09)	<b>0.85</b>	<b>0.88</b>	<b>0.66</b>	<b>0.87</b>	<b>0.81</b>

# Red Snapper Encounters

- Indicates substantial reduction in encounters and mortality from fishing activities
- Observed reductions exceed those estimated in the initial decision model runs

# Incorporating 2010 Observations

- Is the overall effort reduction in 2010  $> 10\%$ ?
- Are fishermen also avoiding red snapper locations, making the moratorium more effective
- Are headboat and commercial fisheries responding similar to MRFSS?
- Does the decline in effort provide enough savings (at least 4% needed) so that the moratorium will end overfishing?
- Can this be evaluated quantitatively?



# Revised Decision Model

- Incorporates observations of the reduction in the Private and Charter modes of the recreational fishery, waves 1-4 2010
- 81% reduction in total removals (lbs ww) compared to baseline
  - 88% reduction in charter
  - 79% reduction in private
- Reductions in commercial and headboat removals are not yet known because observer discard estimates are not currently available.

# Decision Model Results Updated to Include 2010 MRFSS Removal Estimates

Sector	Pct Reduction
Commercial	71%
Private	79%
Headboat	61%
Charter	88%
Total	77%

- A 70-75% reduction in removals is needed to end overfishing.

# Recommendation

- There is evidence to suggest that the moratorium will end overfishing
- Predicated upon substantial effort reduction, some of which is not regulation induced
- May not remain adequate if trend in effort changes

# Decision Model

- Adjusts baseline removals through elimination of trips to account for Amendment 16, 17A, and 17B regulatory actions
- Decision model estimates following reductions due to moratorium when compared to 2007-2009 baseline:

Sector	Pct Reduction
Commercial	71%
Private	69%
Headboat	61%
Charter	55%
Total	66%

- Model does not account for losses in trips due to economy; 2007-2009 may not be representative of current fishery conditions

# MRFSS Estimated Removals

- MRFSS estimates 31% reduction in effort and 81% reduction in catch compared to baseline years
- Compared MRFSS landings and discards from waves 1-4 2010 to landings and discards from waves 1-4, 2007-2009
- MRFSS discards converted to dead discards using SEDAR-24 discard mortality rates for for-hire (41.3%) and private (38.9%)
- Average dead discard weights from SEDAR-24 assessment and projections then used to convert dead discards in numbers to dead discards in pounds.
  - **1.77** = 2007, **1.87** = 2008, **2.17** = 2009; **5.32** = 2010

# Comparison of 2007-2009 Baseline MRFSS Removals versus 2010 Removals

	Base 07-09	2010
Landings – Charter	132,959	205
Ddiscards – Charter	45,032	20,857
Landings – Private	391,247	0
Ddiscards - Private	165,501	119,219
<b>Total</b>	<b>734,289</b>	<b>140,281</b>

- 81% reduction in total removals (lbs ww) compared to baseline
  - 88% reduction in charter
  - 79% reduction in private
- Reductions in commercial and headboat removals are not yet known because observer discard estimates are not currently available.