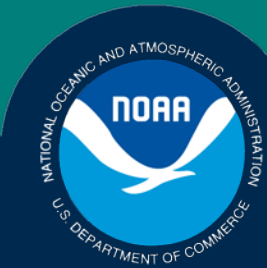


*Science, Service, Stewardship*



# Marine Recreational Information Program

## Status Report on the For-Hire Electronic Logbook Pilot Study in the Gulf of Mexico

South Atlantic Fishery Management Council

February 29, 2012

**NOAA  
FISHERIES  
SERVICE**



# OUTLINE

- NRC and MRIP findings regarding preferred methods for accounting for for-hire fishery catches;
- Status and preliminary findings of the Gulf of Mexico For-Hire Logbook Pilot Project
- Status of development of electronic reporting and other enhancements for the Southeast Headboat survey



## NRC FINDINGS REGARDING FOR-HIRE FISHERIES

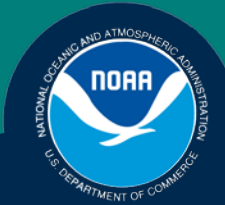
“Charter boat, headboat and other for-hire recreational fishing operations should be required to maintain logbooks of fish landed and kept, as well as all fish caught and released. Providing the information should be **mandatory** for continued operation in this sector, and all the information should be **verifiable** and made available to the survey program in a **timely** manner.”



# MRIP CONSULTANT REVIEW OF FOR-HIRE SURVEYS

Recommendations from Chromy et al (2006) report:

- proposed best practices for for-hire surveys;
- recommended universal use of logbooks with the following caveats;
  - weekly electronic reporting;
  - complete participation;
  - verification program;
  - maintain complete vessel and site frames;
  - probabilistic sampling and estimation weighting recommendations that are consistent with the MRIP re-estimation and intercept survey changes



## GULF OF MEXICO PILOT

- Pilot tested a design that follows the Chromy et al. recommendations
- Data collection from September 2010 to August 2011.
- Final report with conclusions and recommendations expected April, 2012
- Preliminary results presented today were reported by the project team (Sauls et al.) at the 2011 AFS meeting.

# For-Hire Data Collection

- Current Methods
  - Surveys to estimate total effort and catch
- Recommended Methods
  - Logbooks with mandatory reporting (census)
  - Adjust raw logbook data

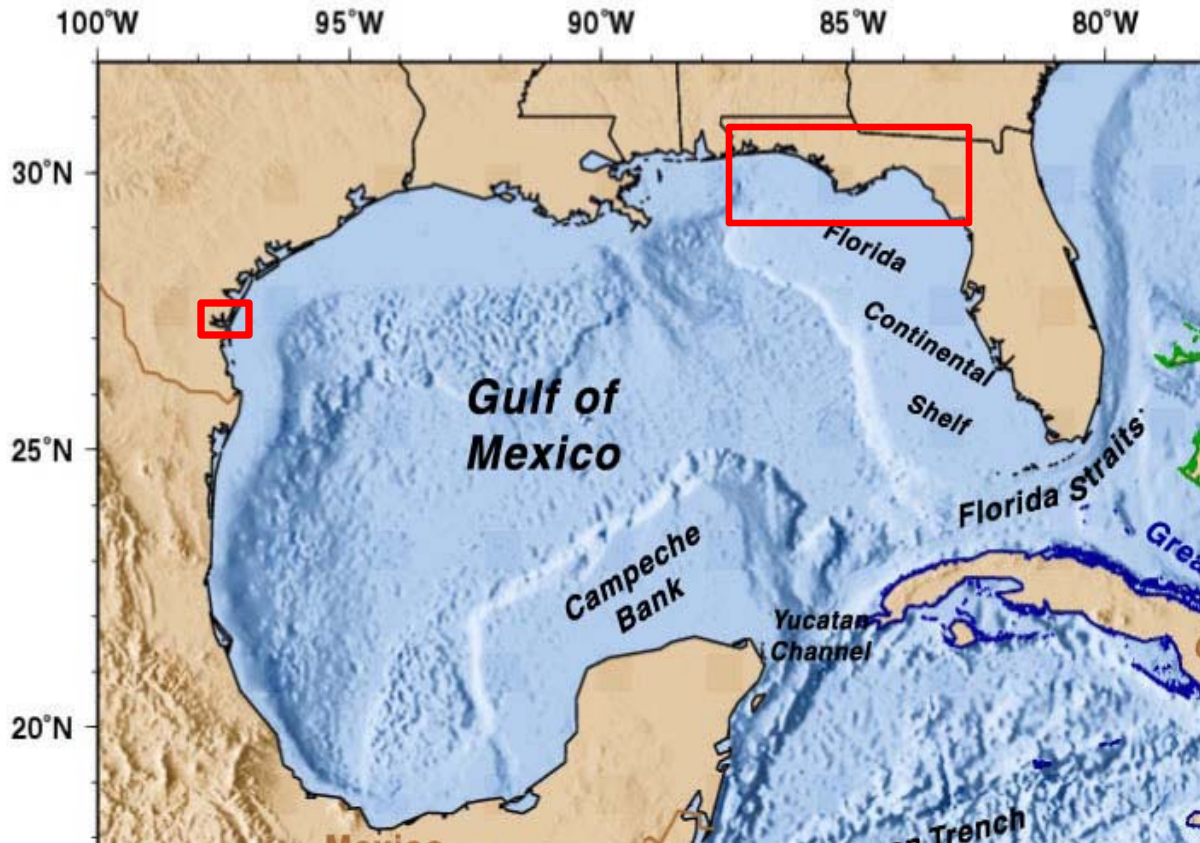


Photo Credit: Gary Moore, FWC





# Study Area:

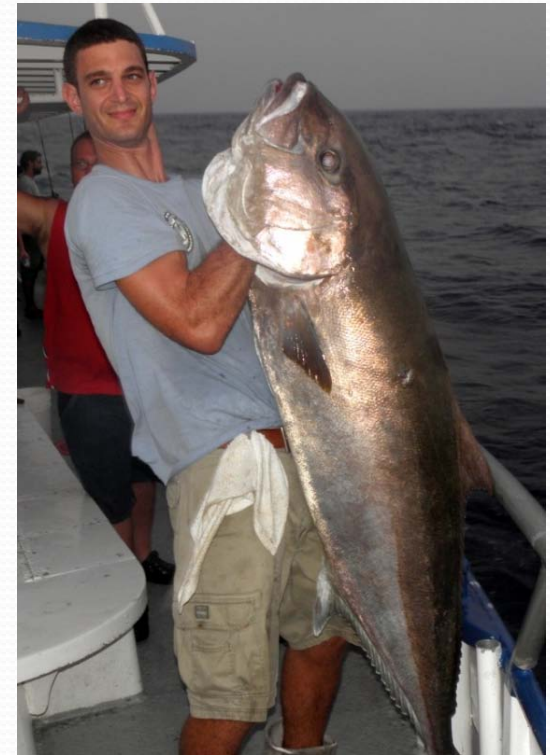


**Northwest FL:**  
**319 vessels +**  
**36 with no reports +**  
**39 inactive**

**Corpus Christi, TX:**  
**54-60 vessels**

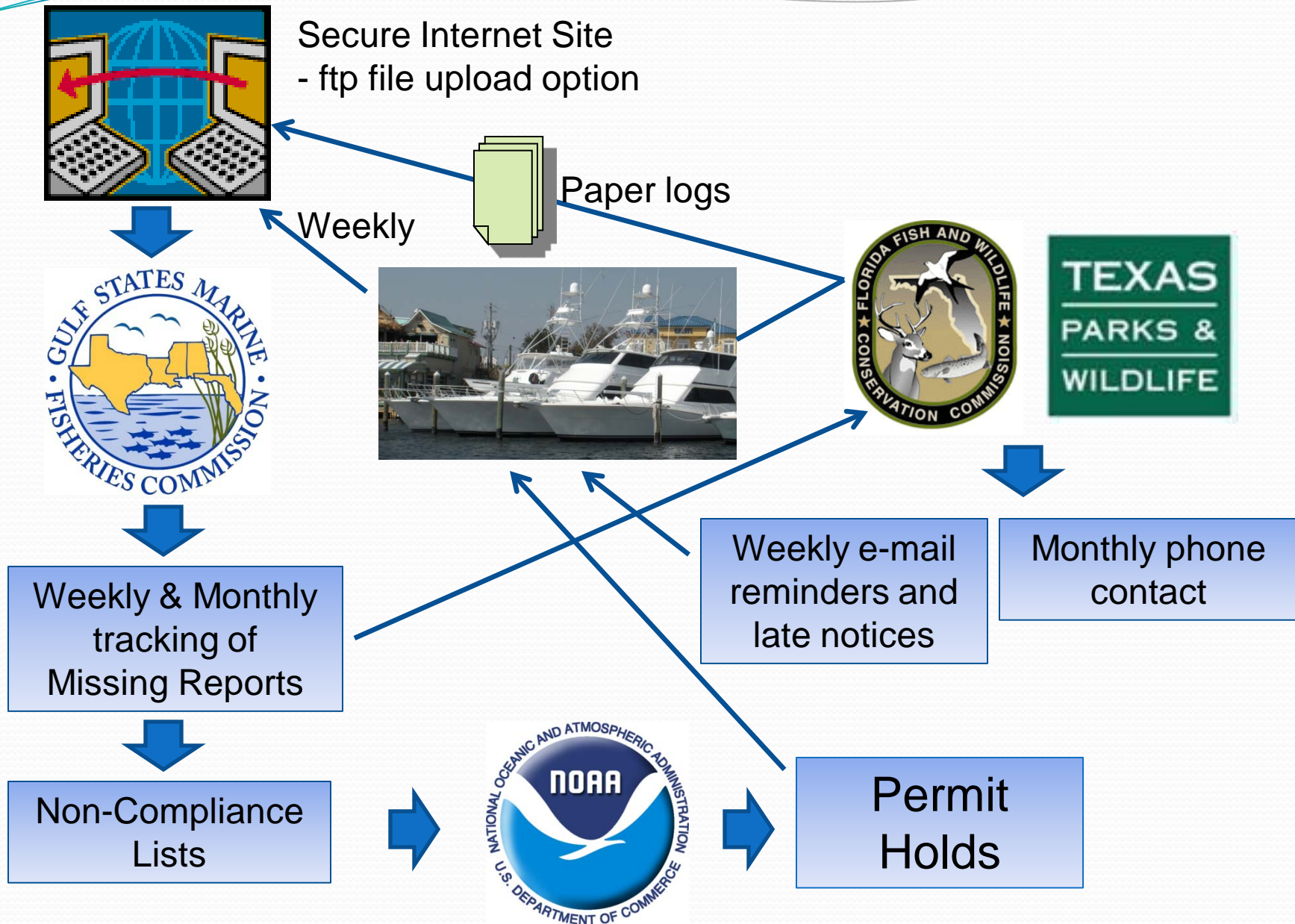
# Study Design

- Charter vessels with federal permits
- Required for permit renewal
  - Weekly reporting
    - Fishing week = Mon – Sun
    - Deadline = following Sunday
- Self-Reported Data
  - Validated and “validatable”
- Keep it simple!





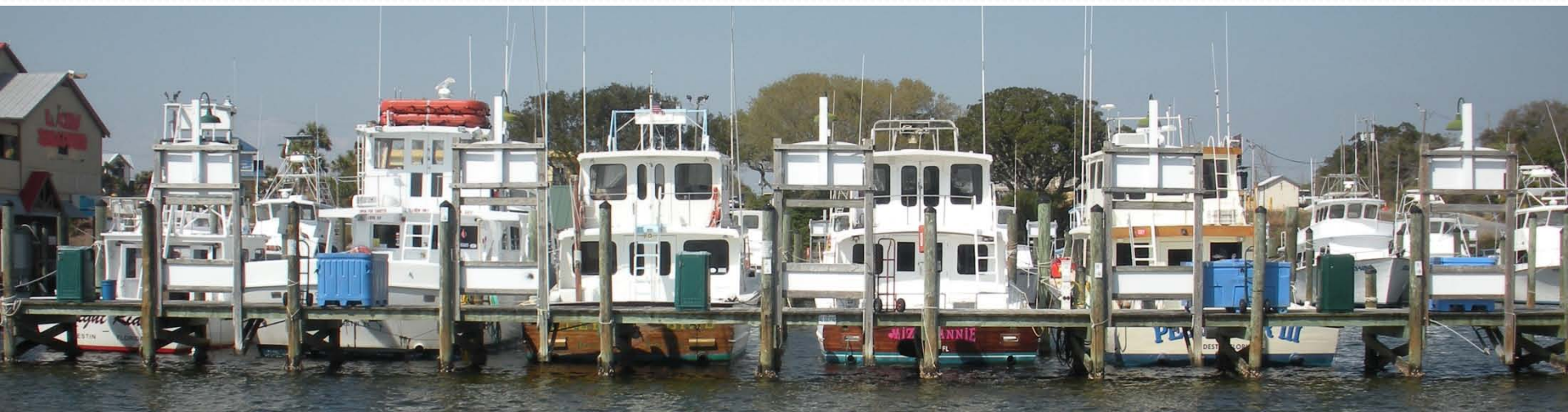
# Logbook Reporting System



# Validation Methods

## Fishing Effort

- Sites clustered into regions
- Randomly select regions each week
- Validate every vessel at every site in selected region



# Validation Methods (cont.)

## Dockside Validation of Catch

- Random site selection – PPS sample
- Interview all returning vessels
- Directly observe harvest
  - Count, weigh, measure
- Interview vessel operators
  - Discards
  - Number of anglers
  - Hours fished

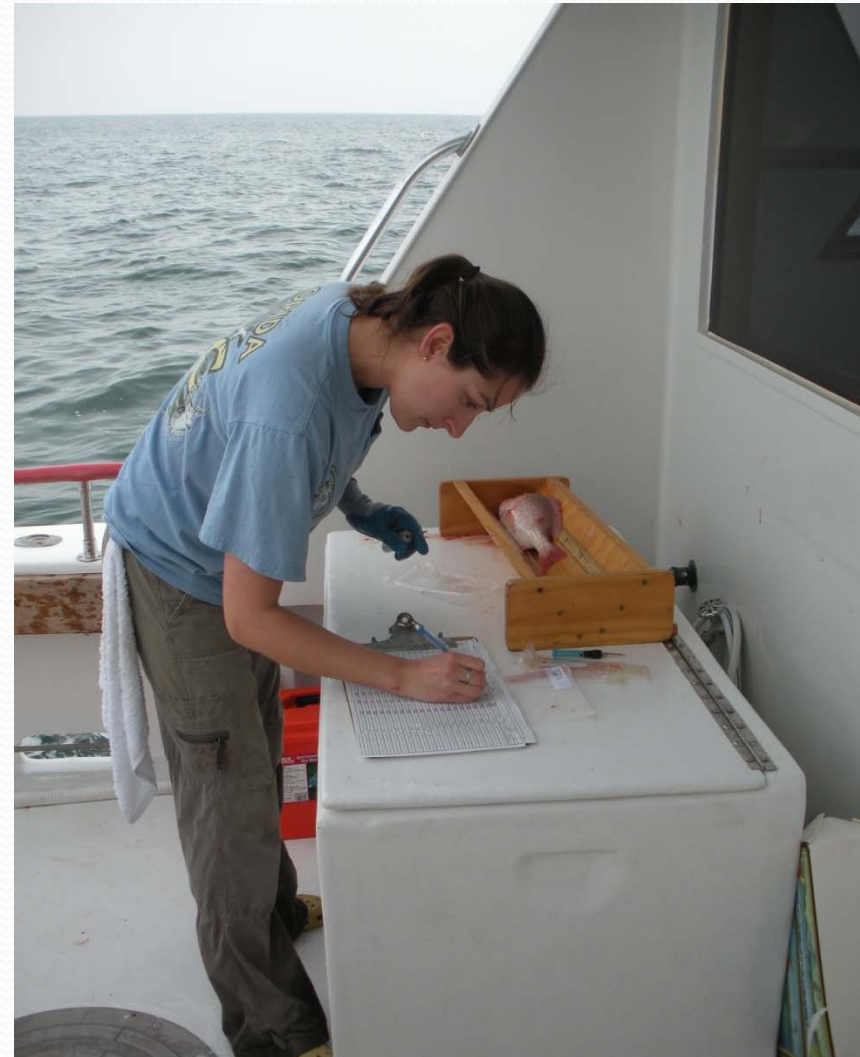




# Validation Methods (cont.)

## At-Sea Validation of Catch

- Random vessel selection
- Directly observe discards
- Not included in preliminary analysis



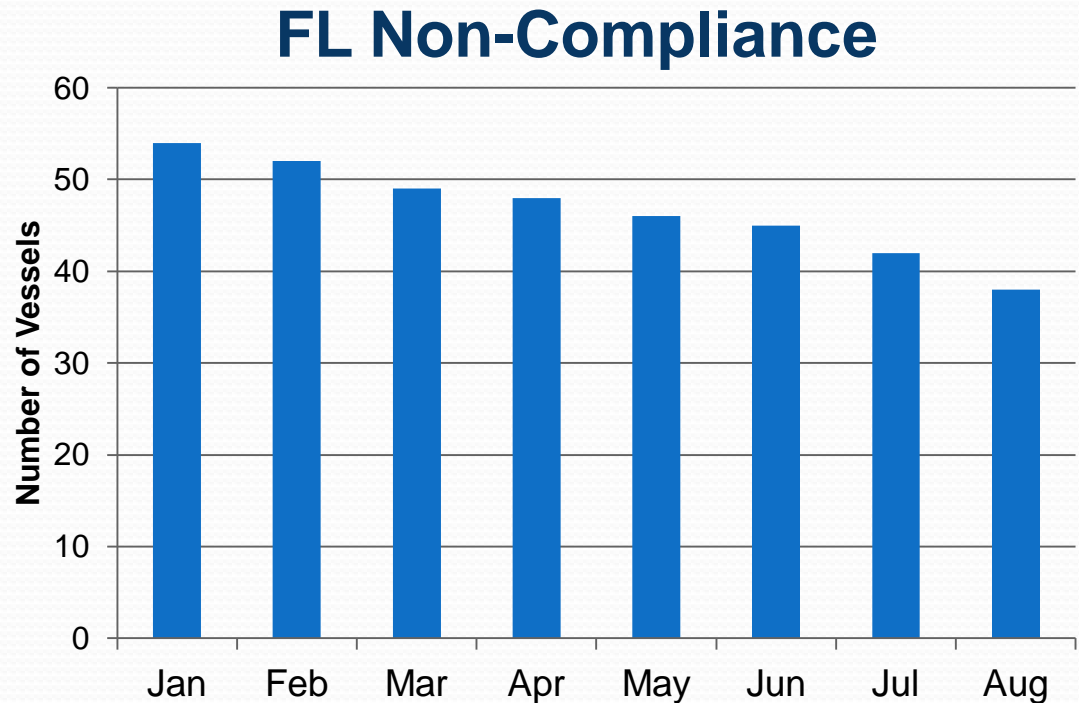
# Preliminary Results

- For 12 month duration of pilot study (9/10 – 8/11)
  - Reporting compliance
  - Reporting timeliness
- For first 9 months of pilot study
  - Effort validation
  - Effort estimation
  - Catch estimation



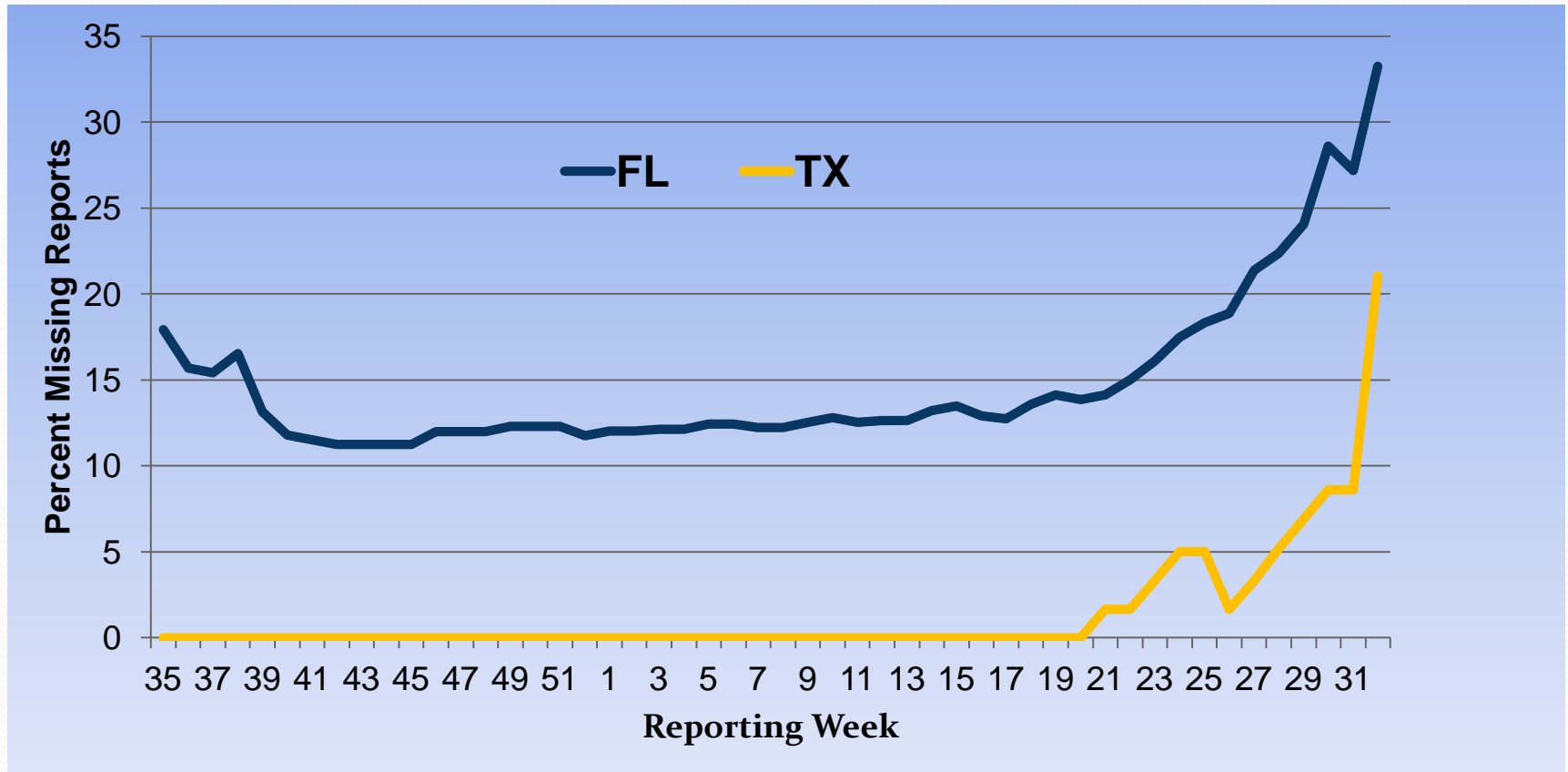
# Reporting Compliance

- As of August 31, 2011
  - Florida
    - 39 non-reporters
  - Texas
    - 0 non-reporters



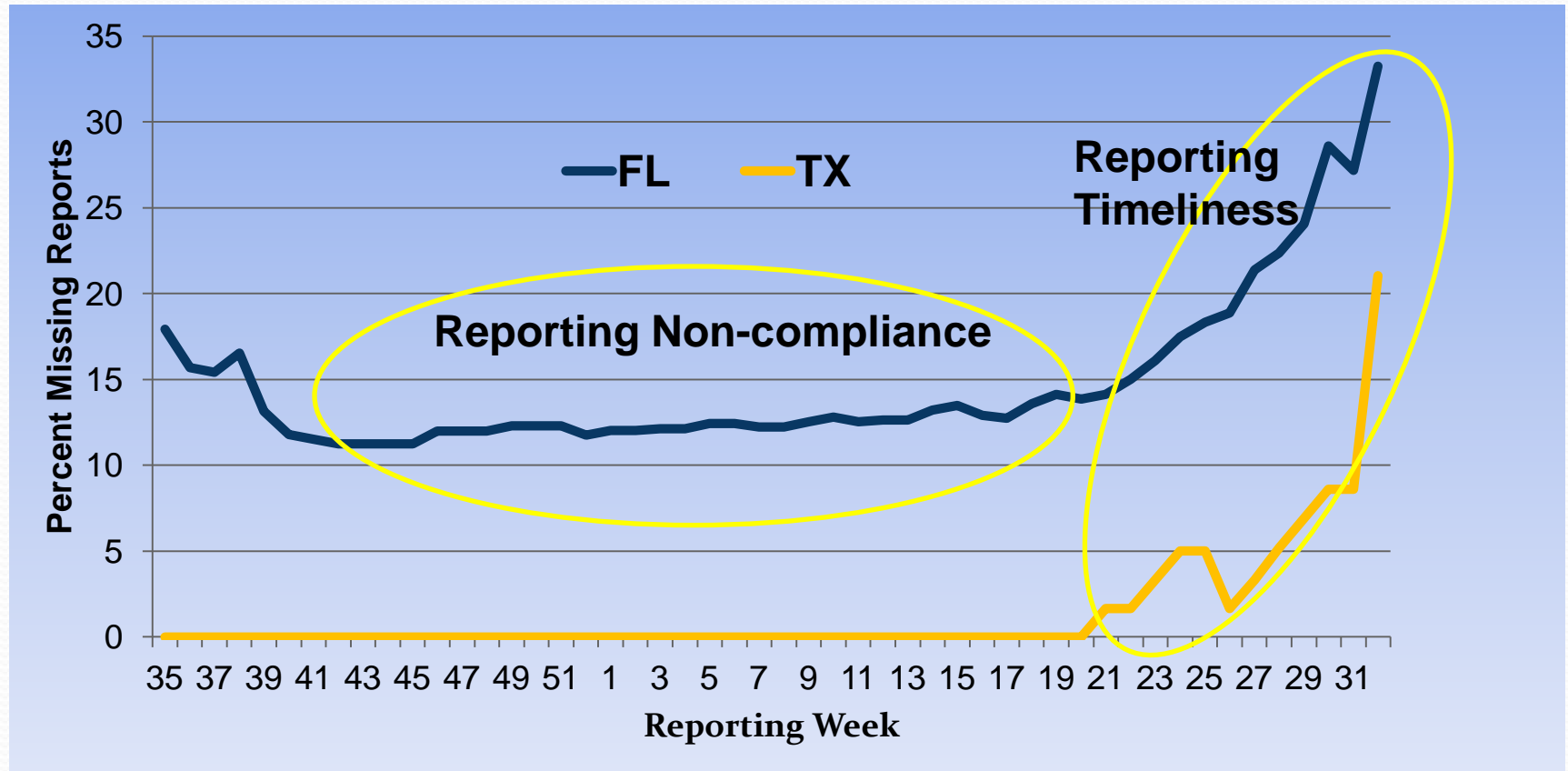


# Reporting Compliance and Timeliness



Sept. 2010 ----- August, 2011

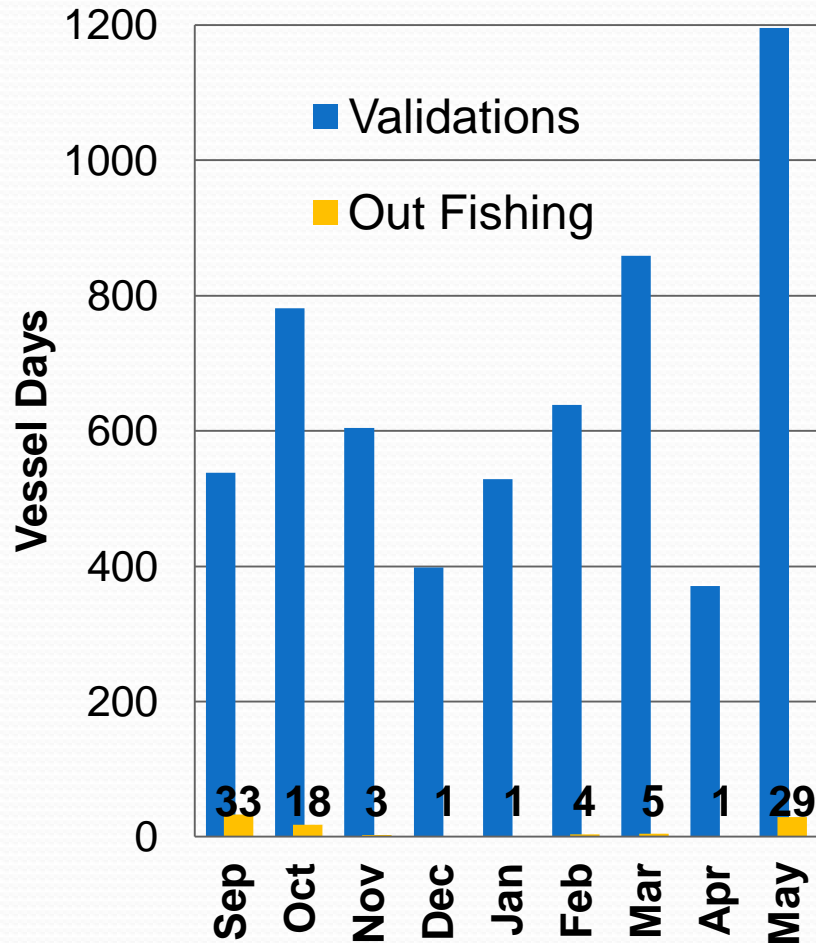
# Reporting Compliance and Timeliness



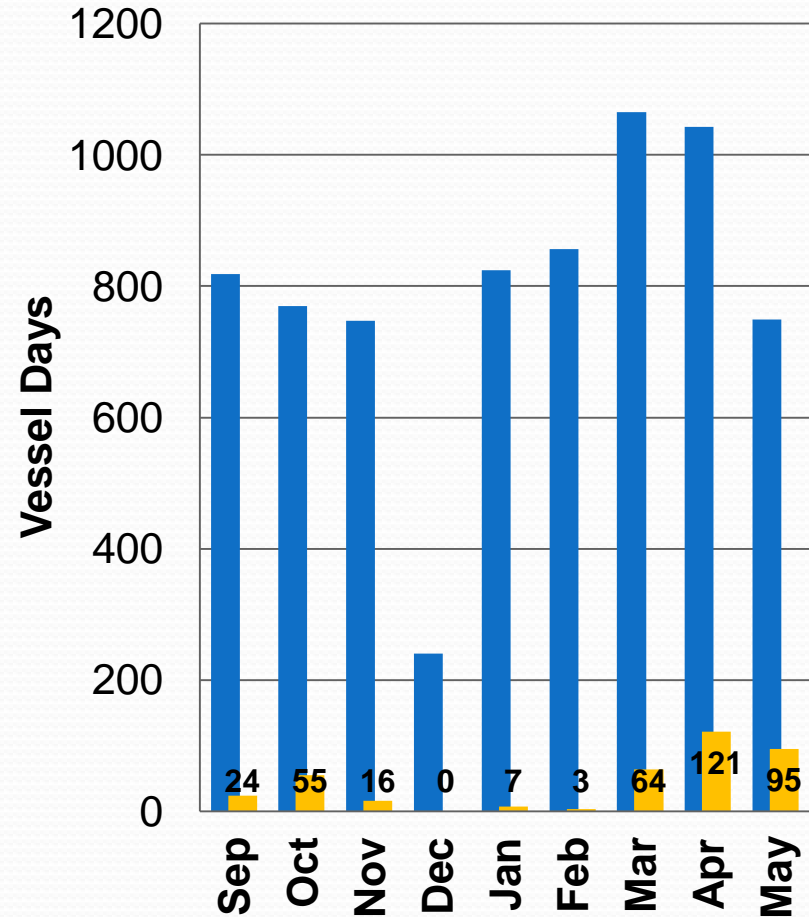
Sept. 2010 ----- August, 2011

# Effort Validation

## Texas



## Florida



# Effort Validation - Florida

Overall Compliance:  
67.8% (63.1, 72.4)

Reasons for no match:  
No report filed = 77%  
Reported inactive = 23%

	Logbook	No Logbook	Match
Sep	13	11	54%
Oct	36	19	65%
Nov	12	4	75%
Dec-Mar	47	27	64%
Apr	83	38	68%
May	70	25	74%
Total	261	124	68%

# Effort Estimation

- Given that logbook data are not a complete census, can logbook data be reasonably adjusted to estimate total effort?
- Three variables were examined for differences between dockside and logbook data sources:
  - Number of Anglers
  - Hours Fished
  - Angler Hours (number of anglers \* hours fished)

# Effort Estimation

	Variable	Absolute Difference (mean absolute error)	Average Difference (mean dock – mean log)	Variance Ratio SD/SL
FL	Anglers	0.450	-0.107	1.063
	Hours	0.676	0.098	1.055
	Angler-Hours	5.603	0.657	1.207



# Catch Estimation – Red Snapper

	Variable	Absolute Difference (mean absolute error)	Average Difference (mean dock – mean log)	Variance Ratio SD/SL
FL	Harvest	0.599	-0.013	1.004
	Rel <120'	4.962	-0.631	0.996
	Rel >120'	4.229	0.446	1.187
	Rel dead	0.949	-0.376	1.013

# Preliminary Conclusions

## Reporting Compliance:

- Large effort required at start-up
- Achieving compliance takes time
- Follow-up is critical
  - Not self-sufficient
  - Work cooperatively
  - Goal is maximum level of participation



# Preliminary Conclusions

Based on this study design:

- Logbook records are not a census
  - 32% of validated trips missing reports
- More suitable for large regional scale
  - Large effort to validate “fishing events”
- A small monitoring program may not be sufficient
  - Individual logbooks do not closely match validations
  - Aggregate values may be comparable
- Logbooks are at least equal to survey method for estimating average effort and/or catch (at least for important species)

# Final Analysis

- August 31, 2011 end of reporting period
- Final analysis
  - Final report in April
    - Comparison of dockside validation and logbook records
  - Is a census attainable?
    - Resources needed
    - Improved compliance
    - Size of monitoring program
    - Level of sampling effort needed for verification
  - Is adjustment of logbook data a viable option?

# Acknowledgements

## Co-Authors

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## Funding and Support



*Science, Service, Stewardship*



# Project Report

## Implementation of Electronic Logbooks on Headboats Operating in the U.S. South Atlantic

**NOAA  
FISHERIES  
SERVICE**





## Project Background

### Project goals:

- Solicited representative vessels to participate
- Developed electronic logbook software
- Implemented electronic reporting for selected vessels
- Asked vessel owners/operators to fill out **both** data forms
- Summarized results

Funding = \$50K from Marine Recreational Information  
Program, Operations Team grant

Period: October 2009 – October 2010



## Pilot Study Objective

A demonstration of electronic reporting to examine potential advantages in **reliability, accuracy, compliance and timeliness.**



- Effort and catch fields
- Forms acquired monthly
  - Retrieved by port samplers
- From acquisition to receipt of electronic data files is approximately 2-4 months

**HEADBOAT SURVEY TRIP REPORT (Carolinas - NE Florida)**

All information is for the exclusive use of NOAA Fisheries

OMB 0648-0018

Exp Date: 12/31/2006

Vessel: \_\_\_\_\_ Date: \_\_\_\_\_ Depart Time: \_\_\_\_\_ Arrive Time: \_\_\_\_\_

Operator's License #: \_\_\_\_\_ Full Day ☐ Other: \_\_\_\_\_ Distance From Shore: \_\_\_\_\_ Pay Type: \_\_\_\_\_

Location: \_\_\_\_\_ 3/4 Day ☐ Overnight ☐ > 3 miles ☐ Per Person ☐

Number of Anglers: \_\_\_\_\_ 1/2 Day ☐ AM ☐ PM ☐ ≤ 3 miles ☐ Per Group ☐

Number of Anglers Who Fished: \_\_\_\_\_ Night ☐ 1<sup>st</sup> ☐ 2<sup>nd</sup> ☐ Inland ☐ No Charge ☐

AGENCY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	44	45	46	47	48											
USE	YR	Mo	Day	Area	Lat	Long	CA	CN	Trip Type	Anglers	VT	Vessel	PT	Ang Fished	DFS																									
25-27	Fish Species				Number Kept 28 - 31	Total Weight 32 - 37	Released Alive 38 - 40	Released Dead 41 - 43	25-27	Fish Species				Number Kept 28 - 31	Total Weight 32 - 37	Released Alive 38 - 40	Released Dead 41 - 43																							
																	<b>GROUPERS</b>												<b>SNAPPERS</b>											
29	Gag								10	Vermillion Snapper																														
30	Scamp								11	Red Snapper																														
20	Speckled Hind								12	Silk Snapper																														
21	Snowy Grouper								14	Blackfin Snapper																														
22	Red Grouper								15	Yellowtail Snapper																														
23	Warsaw Grouper								16	Lane Snapper																														
26	Rock Hind								17	Cubera Snapper																														
31	Yellowmouth Grouper								18	Gray Snapper																														
27	Red Hind								19	Mutton Snapper																														
39	Yellowfin Grouper																																							
88	Graysby																																							
																	<b>MACKERELS</b>																							
74	King Mackerel								56	Spanish Mackerel																														
																	<b>JACKS</b>																							
60	Greater Amberjack								62	Almaco Jack																														
50	White Grunt								123	Banded Rudderfish																														
51	Tomtate (Redmouth)								97	Blue Runner																														
54	Bluestriped Grunt								57	Rainbow Runner																														
53	Margate								90	African Pompano																														
35	Porkfish								87	Crevalle Jack																														
																	<b>TUNAS, etc.</b>																							
01	Red Porgy								79	Bluefish																														
02	Whitebone Porgy								55	Cobia																														
03	Knobbed Porgy								117	Dolphin																														
04	Spottail Pinfish								133	Wahoo																														
05	Jolthead Porgy								116	Little Tunny (Bonito)																														
06	Littlehead Porgy								126	Blackfin Tuna																														
08	Scup (Northern)								147	Yellowfin Tuna																														
83	Pinfish								121	Great Barracuda																														
																	<b>REEF FISHES</b>																							
230	Sharpnose Shark								78	Squirrelfish																														
234	Sandbar Shark								98	Bigeye (Toro)																														
231	Blacktip Shark																																							

**Southeast Logbook Application - ver. 1.0.4 - [SE Logbook Survey Form]**

Close New Delete Print

Survey Number: 1 Vessel: Test Vessel - 123456 Captain: TEST, CAPTAIN Depart Date: 4 / 5 / 2010

Depart Time: 8 :00:00 AM Arrive Date: 4 / 5 / 2010 Arrive Time: 4 :00:00 PM Lat/Long Deg: 3279 Long Minutes: D (20 - 29) Lat Minutes: 3 (30 - 39)

# Anglers: 22 # Anglers Who Fished: 20 Distance From Shore: Greater Than 3 Miles Pay Type: Per Person

**Catch Info**

Species Code: Species Description: Number Kept: Total Weight: Released Alive: Released Dead:

Total # of Fish: 13

Spec Code	Species Description	Number Kept	Total Weight	Released Alive	Released Dead
077	GRAY TRIGGERFISH	10	20	2	0
074	KING MACKEREL	3	30	0	0
230	ATLANTIC SHARPNOSE	0	15	5	0

## Electronic forms:

- Filled-out and transmitted by headboat vessel staff
- Electronic data are available to NOAA Fisheries as soon they are uploaded by users

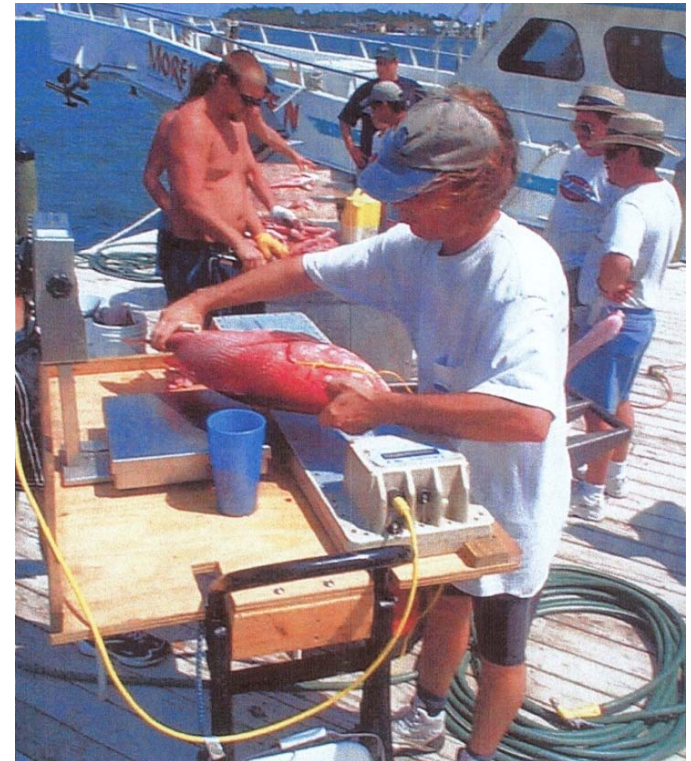




## Validation Methods

Port sampler data collections:

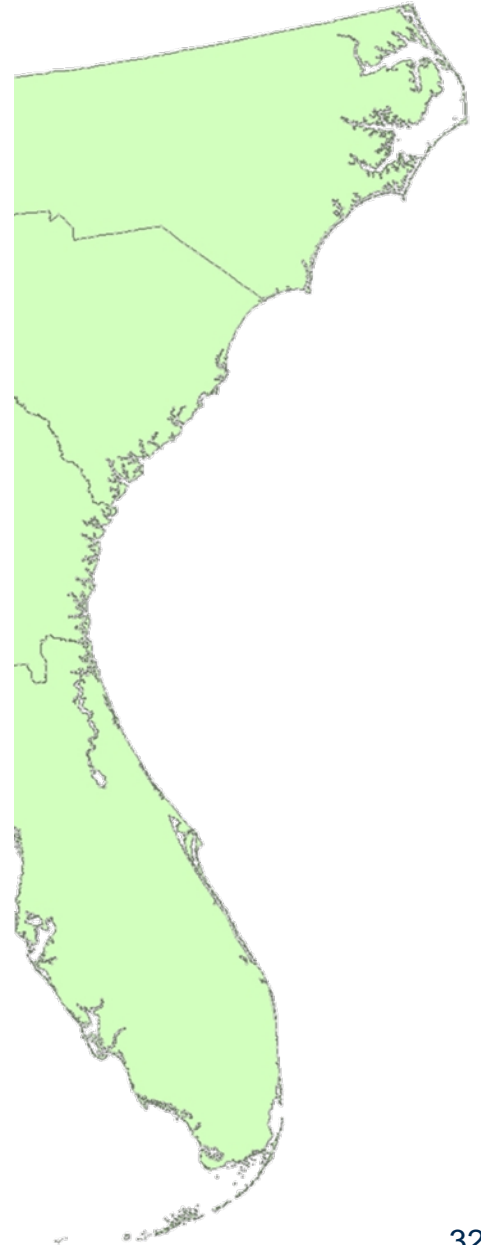
- Dockside sampling  
*e.g., Same species in samples vs. logbooks?*
- Independent trip confirmations  
*e.g., All trips accounted for?*





## Electronic Reporting was Successful

- Seven vessels used in analysis
- 4,859 species records transmitted
- 14,900 anglers on 719 trips
- Exhibited better quality control, reduced data handling, more secure data delivery
- Probable two-month savings on annual catch / effort estimates







## Compare Methods

### Paper vs. Electronic reporting

- *Reliability*
- *Accuracy*
- *Compliance*
- *Timeliness*





## Results: Reliability, Accuracy, Compliance and Timeliness

- **Reliability:** Electronic entry works; 95% of all trips were reported electronically.
- **\*Accuracy:** electronic data had 67% agreement with port samplers dockside samples (snapper/grouper species = 74%)
- **\*Compliance:** 93% of trips verified by port samplers were self-reported, ranged 89% to 100% among vessels
- **Timeliness:** *Mean of 20 days between fishing date and availability to the SRHS (median 9 days)*

\* **validations**



## Study Recommendations

- Region-wide implementation
- Strong technical support in transition
- Internet-based software
- Utilize port agents / SRHS staff as a local training resource
- Review regulatory infrastructure
  - monthly to weekly reporting deadline



## Software Recommendations

- Expand use of visual aids
  - “Clickable” maps of fishing areas
  - Species identification aids
- “Smart” menus
  - Assist by tracking most-used features and entries
  - Limits on unreasonable entry mistakes
- Make catch history query function available to vessel owners/operators

