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

March 7, 2012

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# 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

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# 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."

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# 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

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# GULF OF MEXICO PILOT

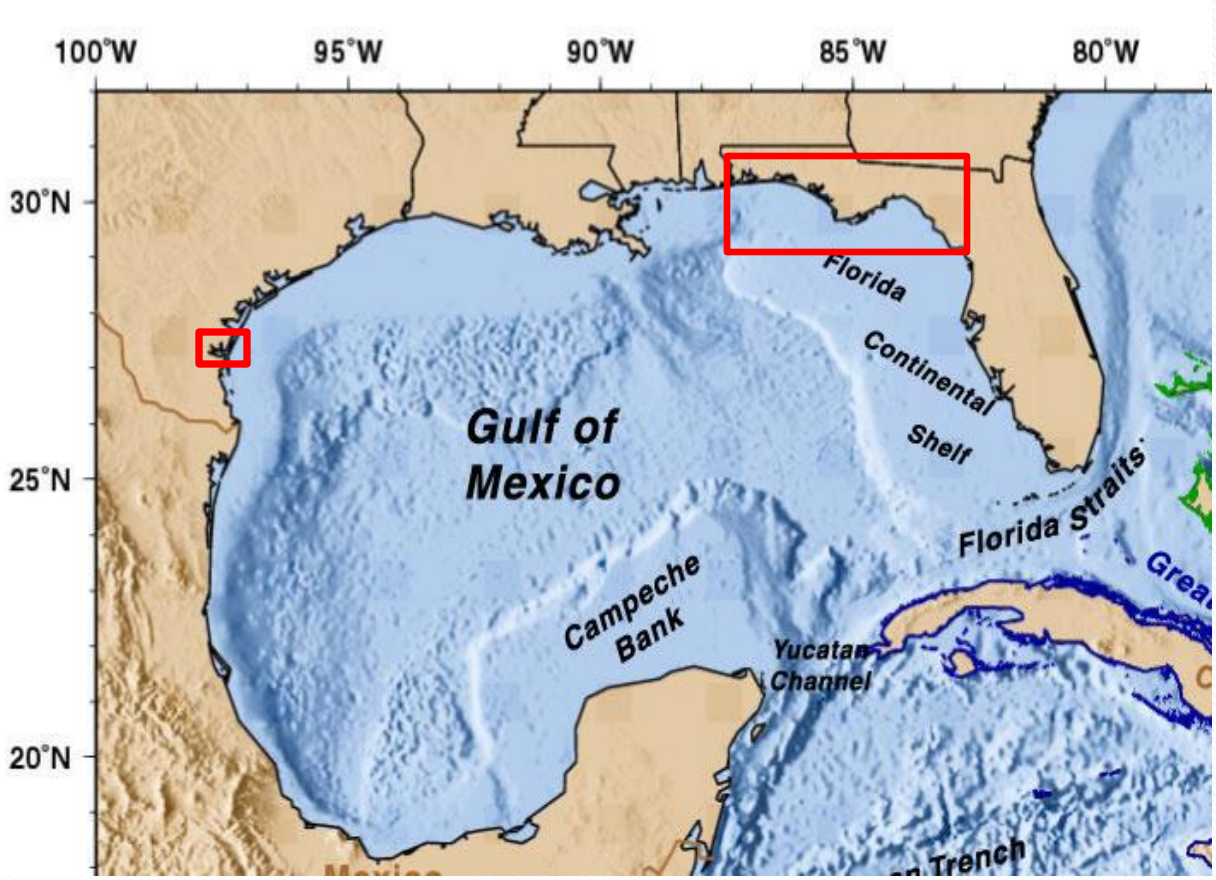
- Pilot tested a design that follows the Chromy et al. recommendations
- Data collection from September 2010 to August 2011.
- Final report with conclusions and recommendations expected April 2012
- Preliminary results presented today were reported by the project team (Sauls et al.) at the 2011 AFS meeting.

# For-Hire Data Collection

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



# Study Area:

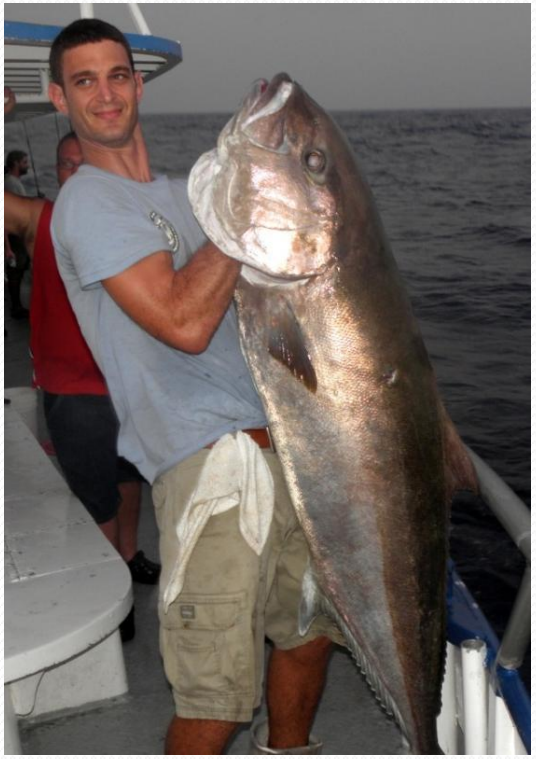



**Northwest FL:**
**319 vessels +**
**36 with no reports +**
**39 inactive**

**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

Secure Internet Site
- ftp file upload option

Paper logs

Weekly

Weekly & Monthly tracking of Missing Reports

Weekly e-mail reminders and late notices

Monthly phone contact

Non-Compliance Lists

Permit Holds

# 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.)

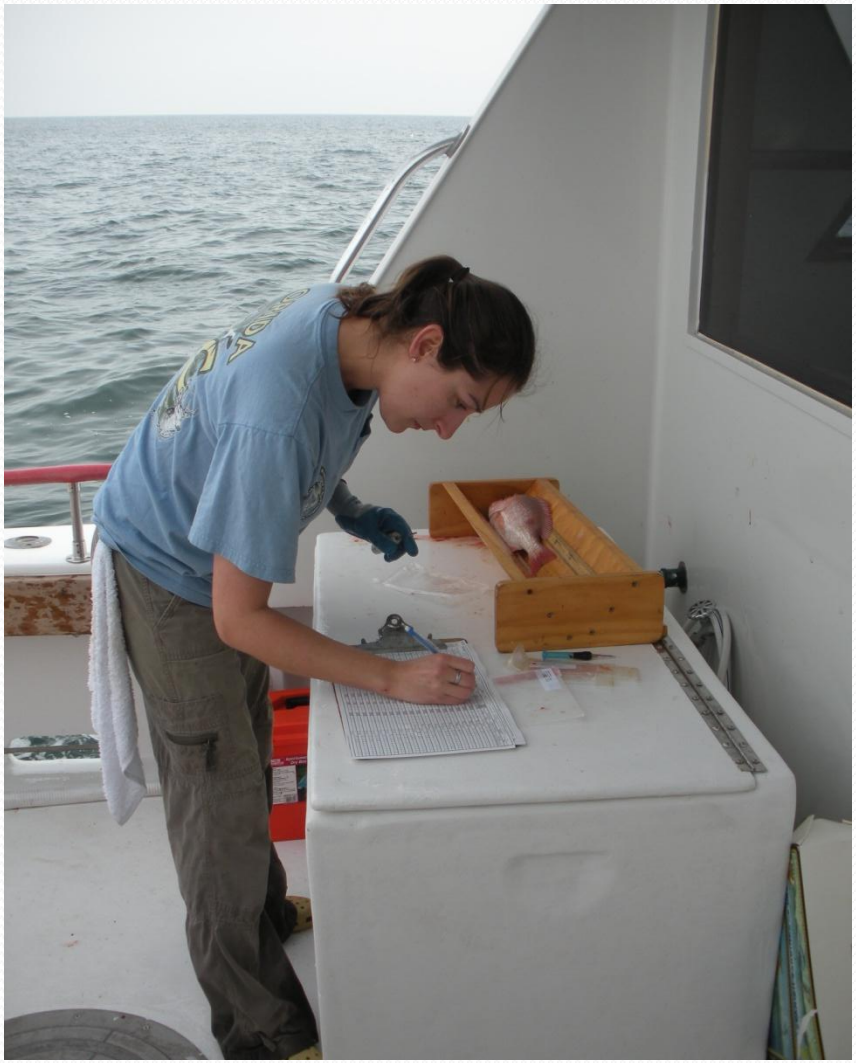
Dockside Validation of Catch

- 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

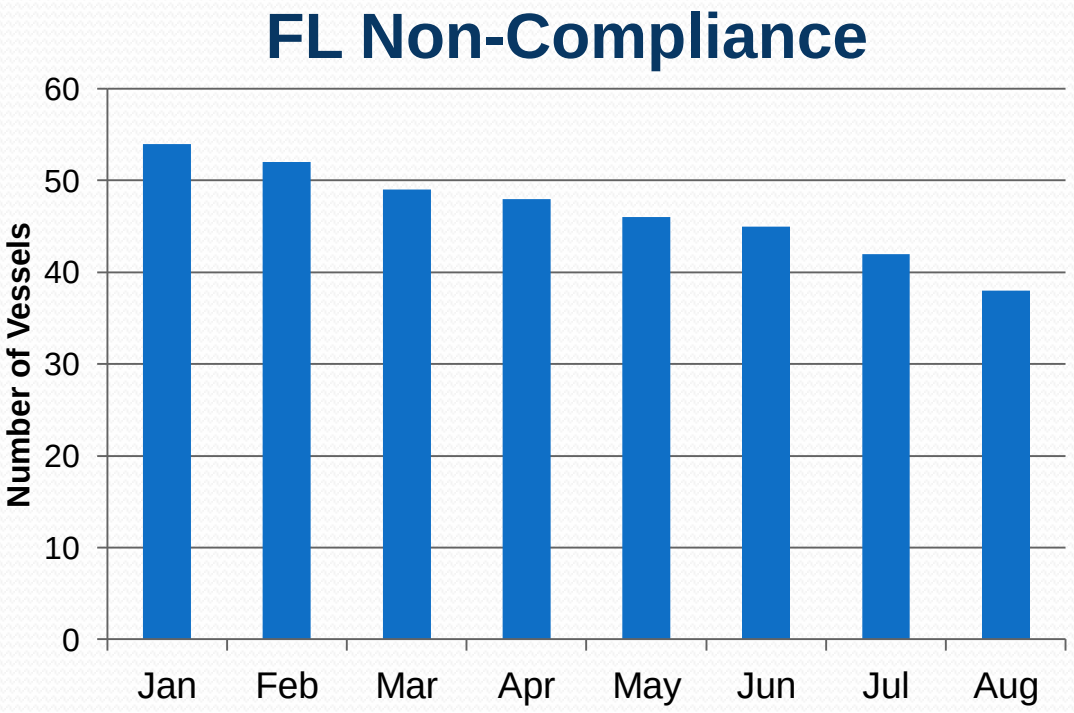


# Preliminary Results

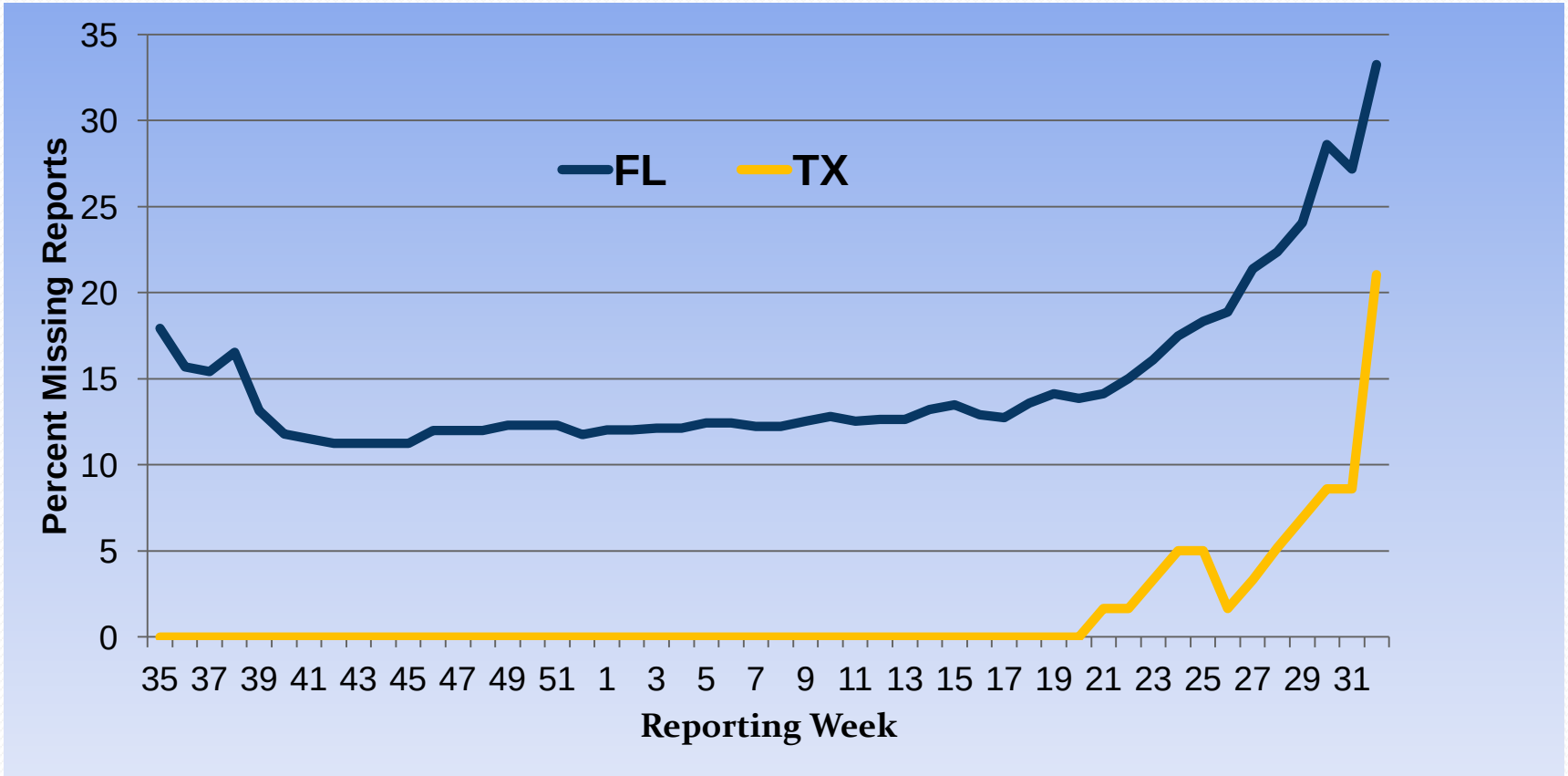
- For 12 month duration of pilot study (9/10 – 8/11)
  - Reporting compliance
  - Reporting timeliness
- For first 9 months of pilot study
  - Effort validation
  - Effort estimation
  - Catch estimation

# Reporting Compliance

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

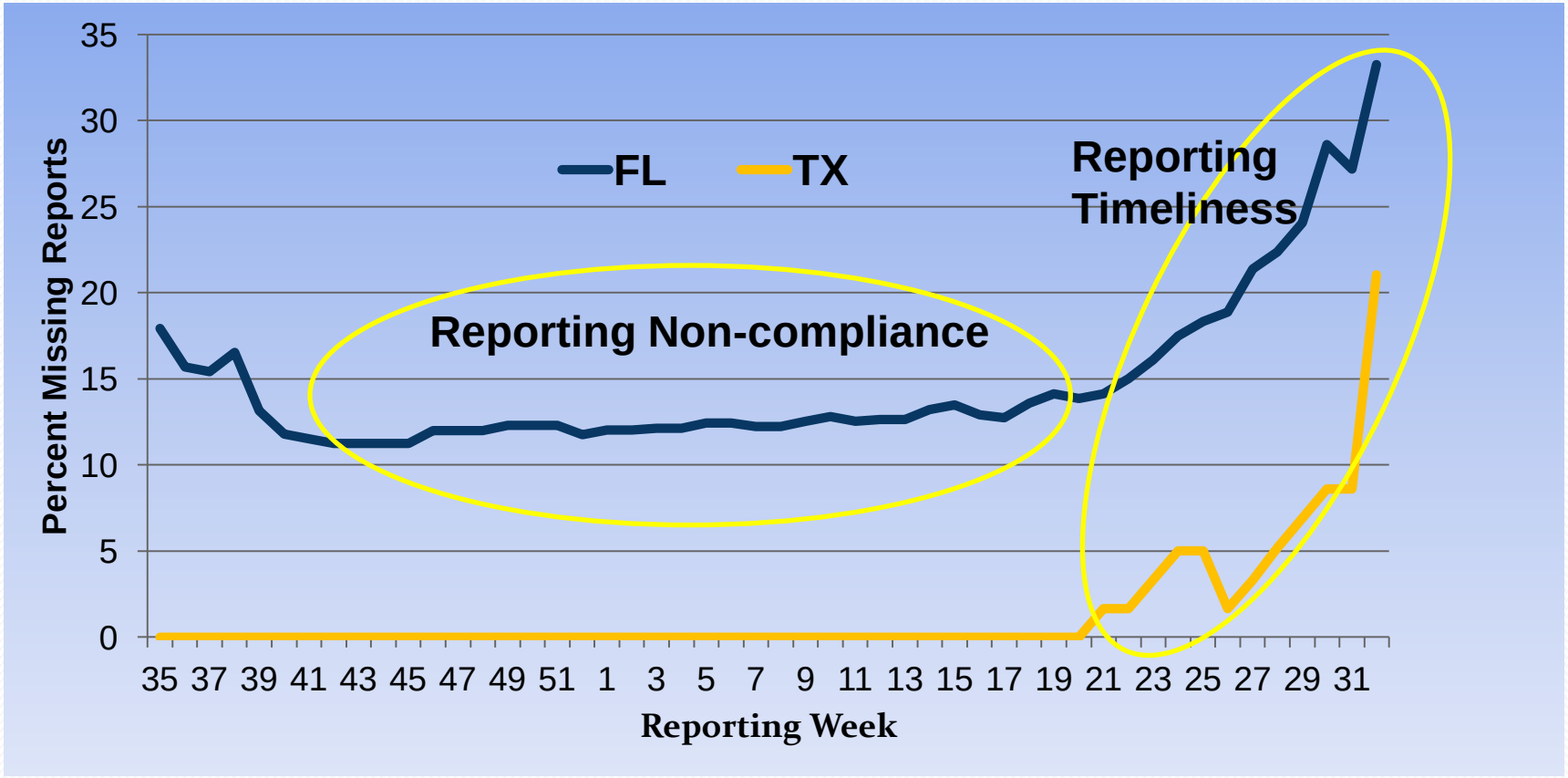


# Reporting Compliance and Timeliness



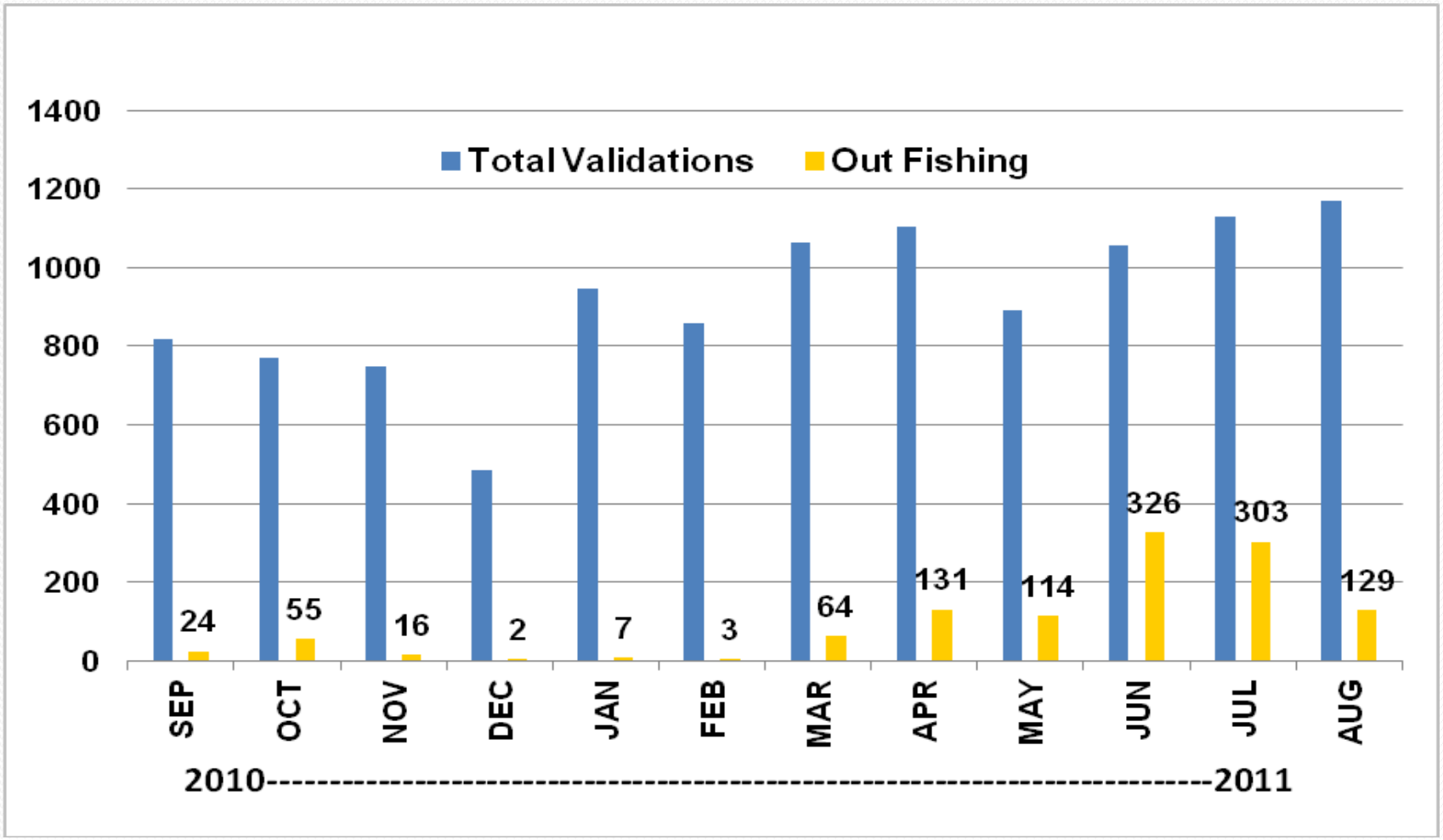

Sept. 2010 ---------- August, 2011

# Reporting Compliance and Timeliness




Sept. 2010 ---------- August, 2011

# Effort Validation - 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 $s_D/s_L$ |
|---|---|---|---|---|
| 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 $s_D/s_L$ |
|---|---|---|---|---|
| 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
D. Donaldson, P. Campbell, A. Strelcheck, K. Brennan

Heavy Lifters
Participating vessel owners and operators
Claude and Andrew Peterson, BluefinData.com
Gregg Bray, Gulf States Marine Fisheries Commission
Stephanie Freed and Bridget Cermak, Florida FWC
Alice Best and Katie Doyle, Texas Parks & Wildlife



Statistical Support
Mark Kaiser, Iowa State University
Robert Trumble, MRAG Americas

Field Staff Support
K. Morgan, I. Rehrig, S. Wilson; FL FWC

Funding and Support

MARINE RECREATIONAL INFORMATION PROGRAM

NMFS Staff Support
R. Andrews, R. Crabtree, G. Colvin, F. Darby, J. Fabian, S. Grimes, M. Judge, P. Pate, B. Ponwith, C. Sramek, D. VanVoorhees

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# Project Report

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

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# 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

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# Pilot Study Objective

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

NOAA Fisheries, SRHS

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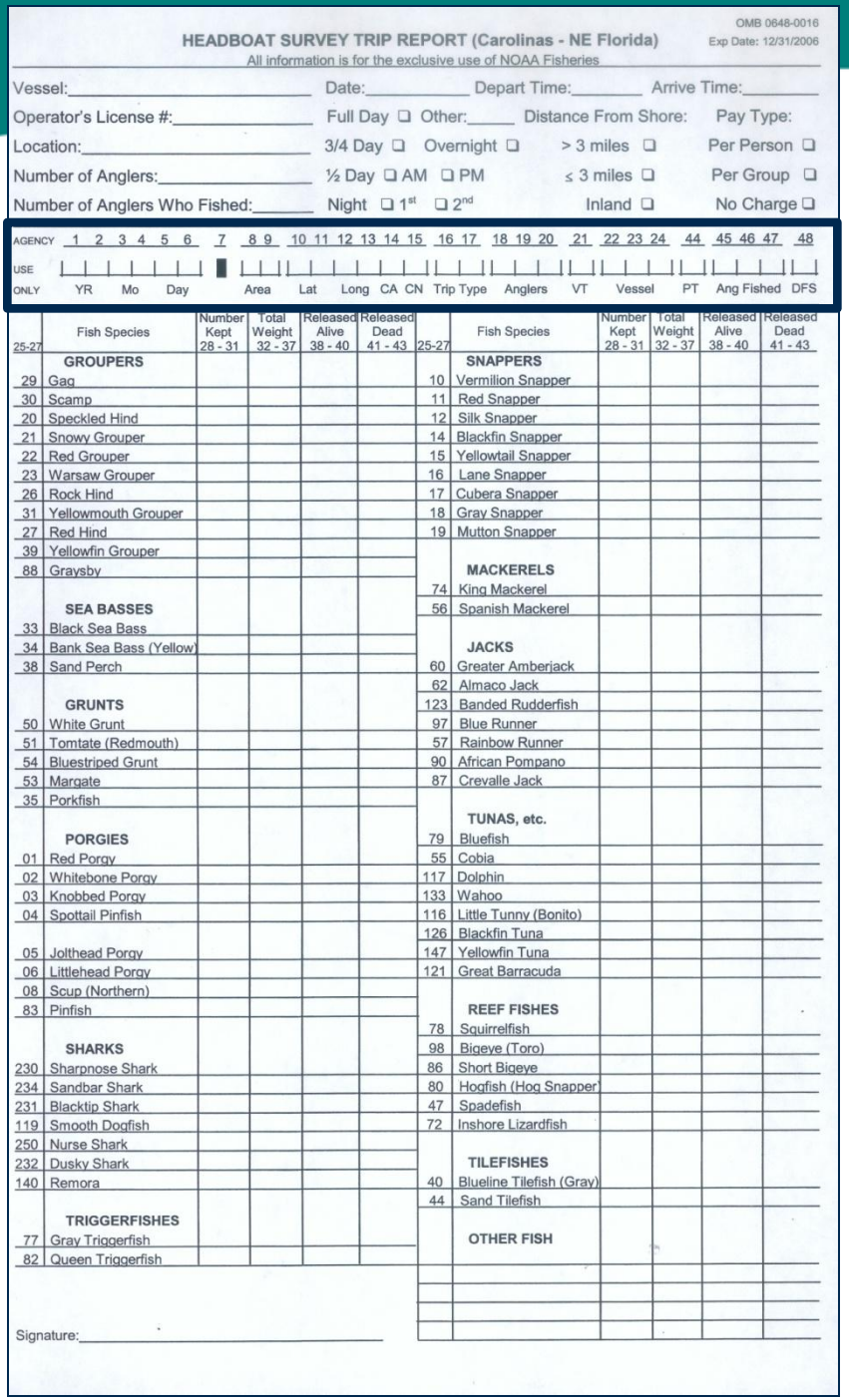
Current paper forms:

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



OMB 0648-0016
Exp Date: 12/31/2006

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

All information is for the exclusive use of NOAA Fisheries

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:_____ ½ Day ❑ AM ❑ PM ≤ 3 miles ❑ Per Group ❑

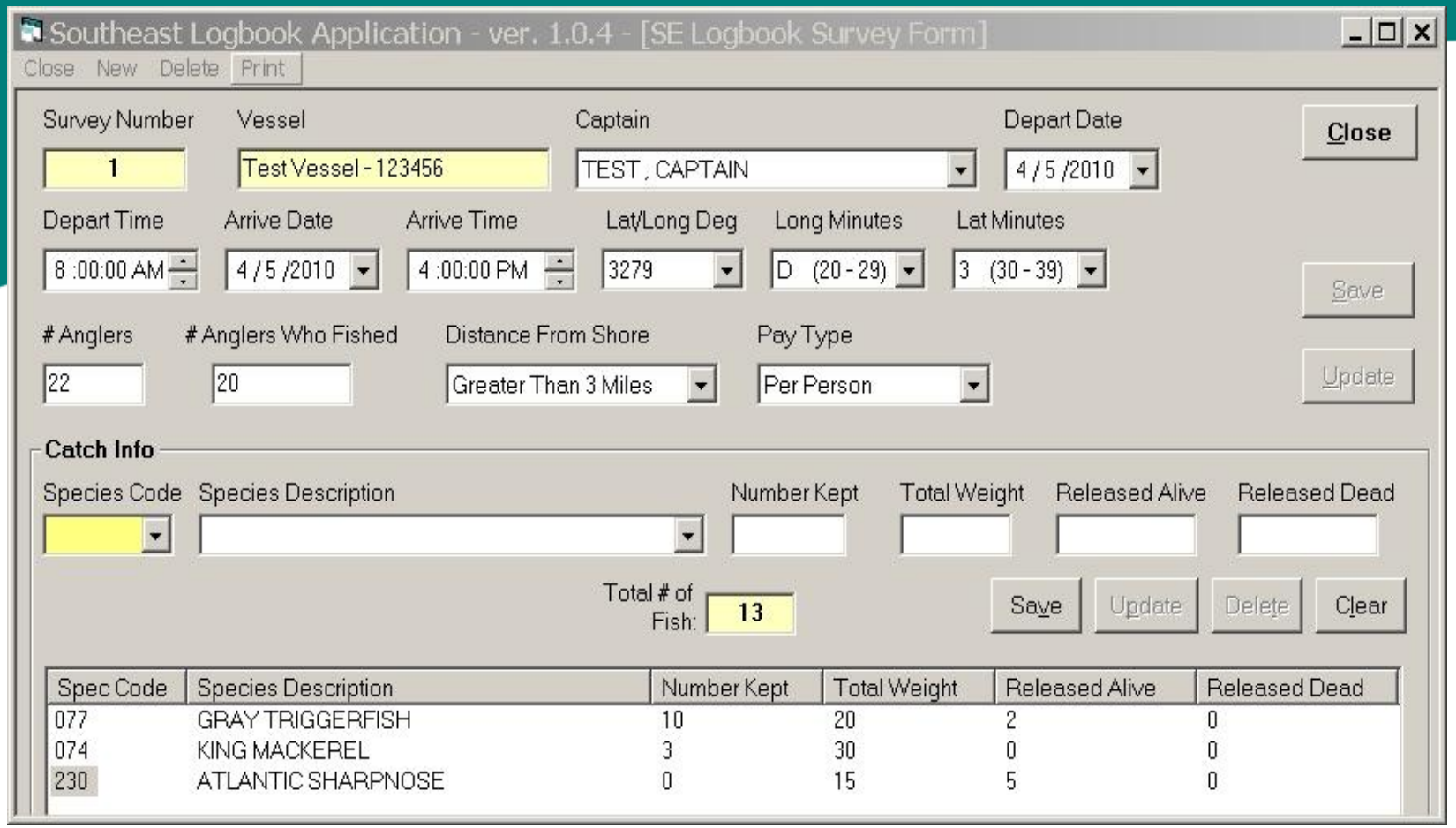
Number of Anglers Who Fished:_____ Night ❑ 1st ❑ 2nd Inland ❑ No Charge ❑

| AGENCY USE ONLY | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 |
|---|---|---|---|---|---|
| | **GROUPERS** | | | | |
| 29 | Gag | | | | |
| 30 | Scamp | | | | |
| 20 | Speckled Hind | | | | |
| 21 | Snowy Grouper | | | | |
| 22 | Red Grouper | | | | |
| 23 | Warsaw Grouper | | | | |
| 26 | Rock Hind | | | | |
| 31 | Yellowmouth Grouper | | | | |
| 27 | Red Hind | | | | |
| 39 | Yellowfin Grouper | | | | |
| 88 | Graysby | | | | |
| | **SEA BASSES** | | | | |
| 33 | Black Sea Bass | | | | |
| 34 | Bank Sea Bass (Yellow) | | | | |
| 38 | Sand Perch | | | | |
| | **GRUNTS** | | | | |
| 50 | White Grunt | | | | |
| 51 | Tomtate (Redmouth) | | | | |
| 54 | Bluestriped Grunt | | | | |
| 53 | Margate | | | | |
| 35 | Porkfish | | | | |
| | **PORGIES** | | | | |
| 01 | Red Porgy | | | | |
| 02 | Whitebone Porgy | | | | |
| 03 | Knobbed Porgy | | | | |
| 04 | Spottail Pinfish | | | | |
| 05 | Jolthead Porgy | | | | |
| 06 | Littlehead Porgy | | | | |
| 08 | Scup (Northern) | | | | |
| 83 | Pinfish | | | | |
| | **SHARKS** | | | | |
| 230 | Sharpnose Shark | | | | |
| 234 | Sandbar Shark | | | | |
| 231 | Blacktip Shark | | | | |
| 119 | Smooth Dogfish | | | | |
| 250 | Nurse Shark | | | | |
| 232 | Dusky Shark | | | | |
| 140 | Remora | | | | |
| | **TRIGGERFISHES** | | | | |
| 77 | Gray Triggerfish | | | | |
| 82 | Queen Triggerfish | | | | |

| 25-27 | Fish Species | Number Kept 28 - 31 | Total Weight 32 - 37 | Released Alive 38 - 40 | Released Dead 41 - 43 |
|---|---|---|---|---|---|
| | **SNAPPERS** | | | | |
| 10 | Vermilion Snapper | | | | |
| 11 | Red Snapper | | | | |
| 12 | Silk Snapper | | | | |
| 14 | Blackfin Snapper | | | | |
| 15 | Yellowtail Snapper | | | | |
| 16 | Lane Snapper | | | | |
| 17 | Cubera Snapper | | | | |
| 18 | Gray Snapper | | | | |
| 19 | Mutton Snapper | | | | |
| | **MACKERELS** | | | | |
| 74 | King Mackerel | | | | |
| 56 | Spanish Mackerel | | | | |
| | **JACKS** | | | | |
| 60 | Greater Amberjack | | | | |
| 62 | Almaco Jack | | | | |
| 123 | Banded Rudderfish | | | | |
| 97 | Blue Runner | | | | |
| 57 | Rainbow Runner | | | | |
| 90 | African Pompano | | | | |
| 87 | Crevalle Jack | | | | |
| | **TUNAS, etc.** | | | | |
| 79 | Bluefish | | | | |
| 55 | Cobia | | | | |
| 117 | Dolphin | | | | |
| 133 | Wahoo | | | | |
| 116 | Little Tunny (Bonito) | | | | |
| 126 | Blackfin Tuna | | | | |
| 147 | Yellowfin Tuna | | | | |
| 121 | Great Barracuda | | | | |
| | **REEF FISHES** | | | | |
| 78 | Squirrelfish | | | | |
| 98 | Bigeye (Toro) | | | | |
| 86 | Short Bigeye | | | | |
| 80 | Hogfish (Hog Snapper) | | | | |
| 47 | Spadefish | | | | |
| 72 | Inshore Lizardfish | | | | |
| | **TILEFISHES** | | | | |
| 40 | Blueline Tilefish (Gray) | | | | |
| 44 | Sand Tilefish | | | | |
| | **OTHER FISH** | | | | |

Signature:_____




Electronic forms:

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

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# Validation Methods

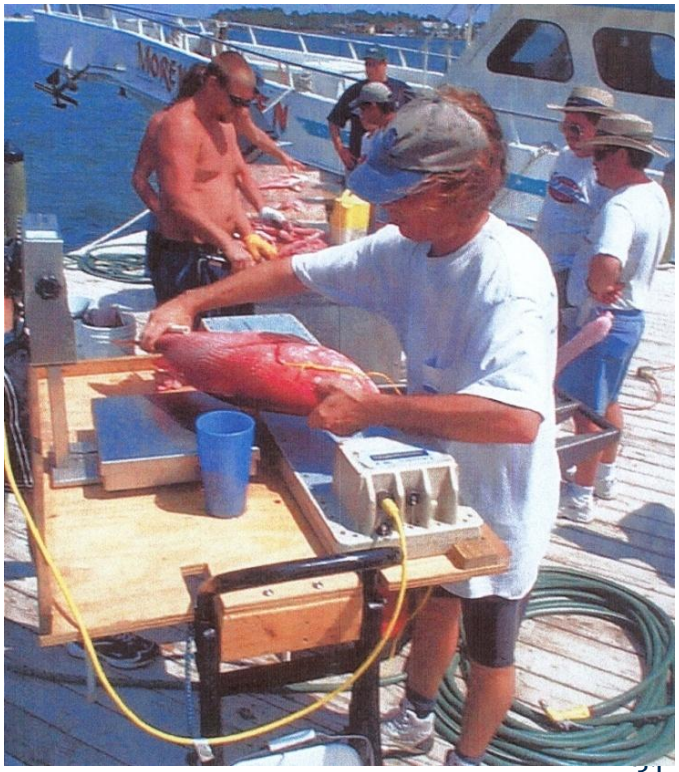
Port sampler data collections:

- Dockside sampling

  *e.g., Same species in samples vs. logbooks?*

- Independent trip confirmations

  *e.g., All trips accounted for?*



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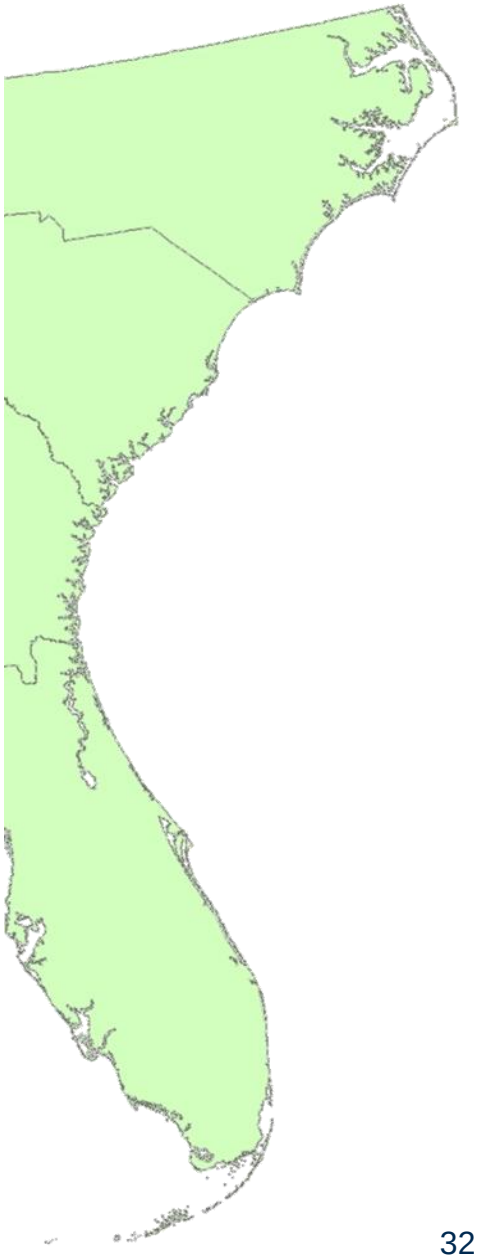
# Electronic Reporting was Successful

- 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



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# Compare Methods

Paper vs. Electronic reporting

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

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# 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**

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# 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

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# 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