



Incorporating Technology in Alabama's At-Sea Observer Program

Marie Head, Biologist II, Alabama Marine Resources Division

Background



- Alabama's coastline stretches for 60 miles along the Gulf of Mexico providing various fishing access points for recreational saltwater anglers.
- Alabama's artificial reefs complex is ~1,000 mi² with over 10,000 artificial reefs structures providing habitat for reef fish.
- ~150 state and federal for-hire vessels in our charter fleet that have federal reef permits and/or reef endorsement licenses.
- Fishing effort increases during the months from March to October with peak fishing effort in June and July.
- Charter trips generally target Vermilion Snapper, Gray Triggerfish, Greater Amberjack and Groupers when seasons are open.
- Provides an opportunity for staff to ride along charter for-hire trips and collect information on key reef fish species.

Alabama's At-Sea Observer Program



- Participated in a NFWF funded At-Sea Observer Program focusing on discard and mortality rates of reef fish species from 2015 – 2019.
- Paper-based data collection recorded on multiple sheets.
- Lengths obtained using traditional measuring board and transcribed on paper.
- Often, observers would re-write their data sheets onto clean sheets for hand entry later.
- Assignments were reviewed by sampler then manually entered in an internal database for QAQC.

Alabama's At-Sea Observer Program

- In 2021, an opportunity was made available through GSMFC for the Return 'Em Right Program to continue an At-Sea observer program.
- Funds were available through grant to purchase supplies and equipment necessary to complete the tasks.
- Streamlining data processes were identified as a priority to improve efficiency by integrating electronic technology.
- The initial year of at-sea sampling, observer data collected via paper, using traditional measuring board for lengths.
- Fully transitioned to using e-boards and tablets for observer data collection.



Electronic Data Collection



- Big Fin Scientific DCS5 Micro Fish Board with Samsung Galaxy Tab Active 3 tablet combo.
- DCSLinkStream app is used to create the fields for the data collection process.
- Observations are recorded in real-time.
- Post assignment, data is exported as a .CSV file and stored in excel.
- Tablet/E-Board combination operational in most weather conditions and able to handle a variety of fish lengths up to 100cm.
- Transitioning staff to tablet/e-board based collection was smooth.

Pros and Cons

Pros

- Reduce personnel time spent post processing the data.
- Increase efficiency in data collection.
- Improve timeliness of data transfer and availability to fishery managers.

Cons

- Time required for hardware/software setup and personnel training.
- Initial start-up cost ~ \$6,800.00 per board/e- tablet combo
 - Additional software license renewal costs ~ 2 years.
 - Replacement parts
 - External battery packs
- Basic understanding in the use of electronic devices and software programs.



Paper vs. E-Board/Tablet Based Collection

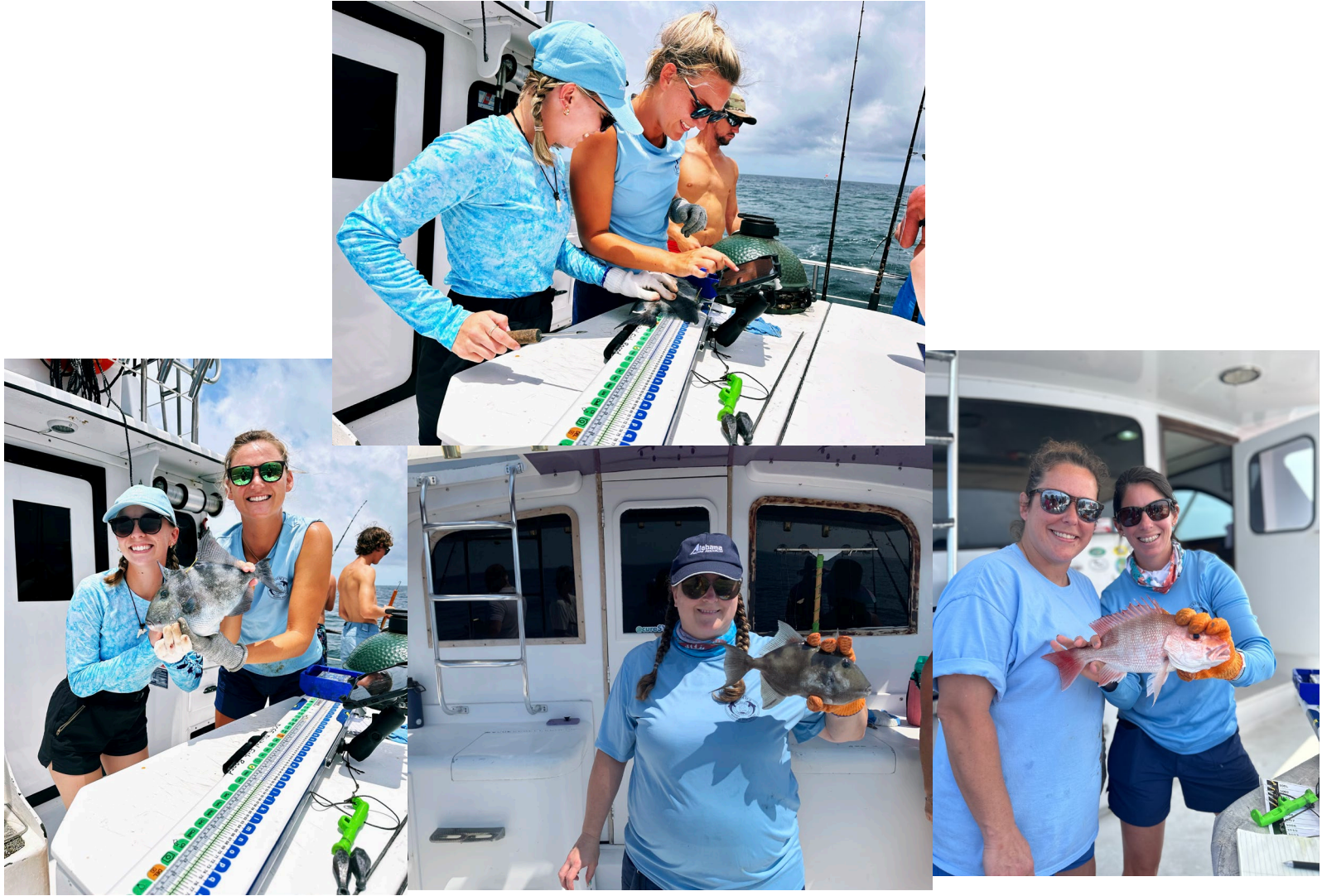
Transitioning in using electronic technology has:

- Streamlined data review, entry and QA/QC processes by reducing errors.
- Data uploaded daily and available to fishery managers monthly .
- Utilizing the board has increased our efficiency in data collection.

Differences Between Paper and E-board/Tablet Data Collection						
Year	Collection Method	Total # of Trips	Mean Trip Length (hr)	Mean # of Fish Lengths per Trip	Mean # of Fish Tagged per Trip	% of Total Released Fish Were Tagged
2022	Paper	22	6	17	15	47
2023	Tablet/E-board	21	7	23	17	52

Conclusion

- From March 1, 2023, through September 30, 2023, AMRD staff have complete 64 out of 68 scheduled trips with Big Fin Scientific e-board and tablet combination.
- During this time period:
 - **Minor software/hardware malfunctions occurred during field sampling activates but no data was lost.**
 - **No equipment damage or loss.**
 - **Battery life of the board lasted for 12-hour vessel trip whereas the tablet would last for 10-hour vessel trip before needing to use battery back-up.**
- Overall, AMRD staff and managers have been pleased with implementing this technology into our at sea observer program and are considering using this technology in other fishery dependent programs.



Thank You