

Opportunities and Challenges Associated with EM and VMS Data Use in the Snapper Grouper Commercial



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SAFMC Snapper Grouper Advisory Panel Meeting
N. Charleston, SC
April 23, 2013



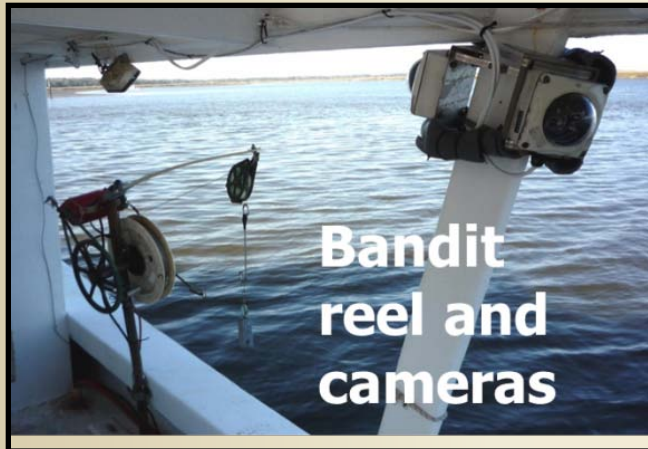
Presentation Outline

- **Updated results from 2010 EM pilot project**
- 2012 survey results related to EM
- Opportunities and challenges for electronic data (EM, VMS, etc.) usage to enhance fishing effort documentation in the Snapper Grouper fishery



Main Objective of EM Pilot Study

- Compare EM based catch counts and species identification success to that collected by an at-sea observer on 5 trips (4 vessels, 26 sea days)

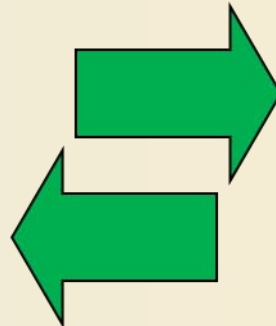


Methods

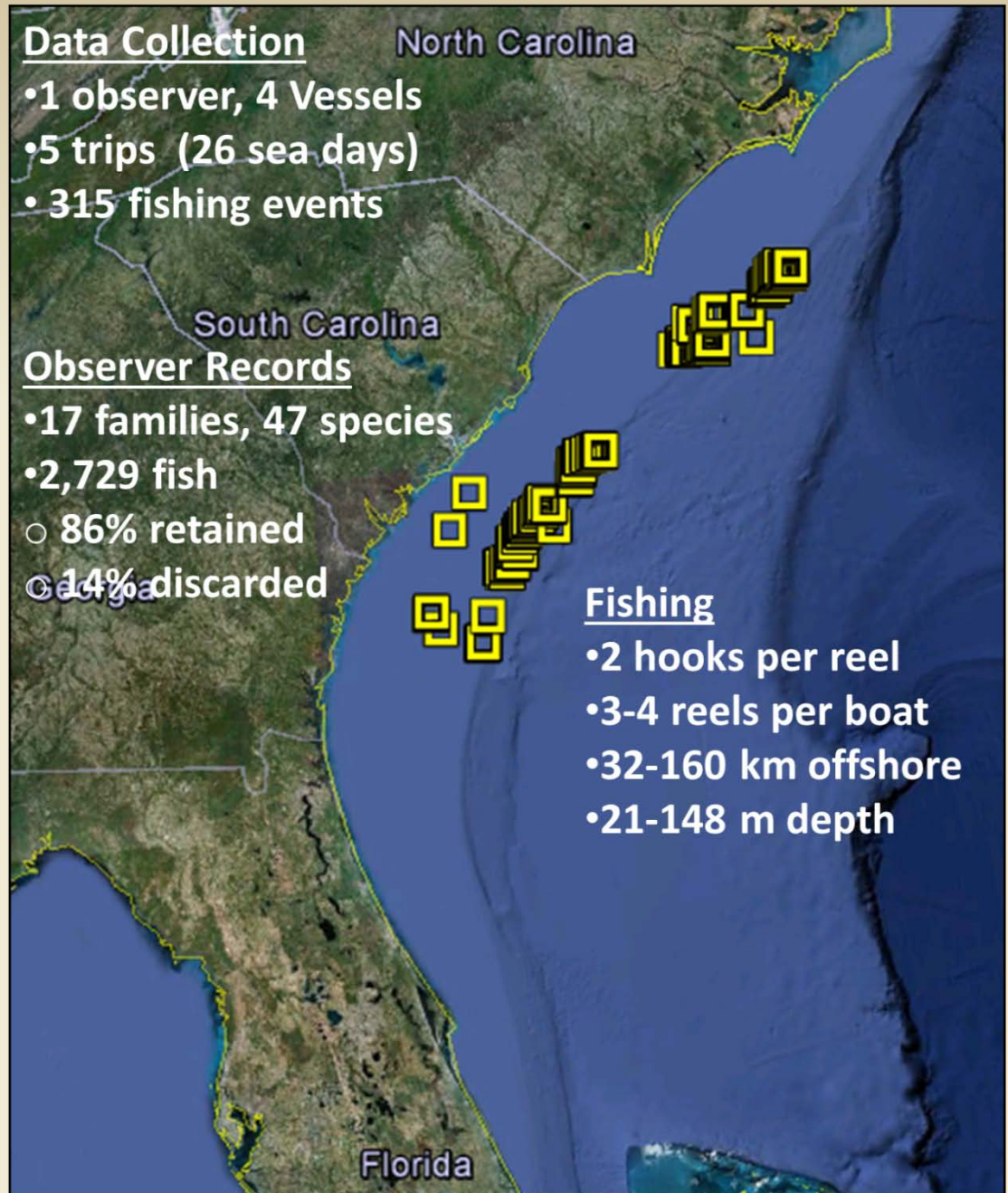
- One camera installed per reel (max 4 cameras)
- Observer recorded fishing activity at the hook level.
- Observer data used to define fishing events in the EM record
- EM viewer analyzed all video from observer's events

Date ____/____/2010	Vessel Name _____	LogbookGrid# _____	Avg. Depth (ft) _____
Starting time _____	Ending time _____	Target species (if any) _____	
Bandits (camera # from computer screen) observed during this period. Reel # _____ Reel # _____			
Species Name	Total # Kept (any reason)	Total # Discarded (any reason)	
Red porgy			
Red grouper			
Red snapper			
O			
T			
H			
E			
R			
S			
Did you record ALL occurrences of the first 3 species listed on this sheet? Yes _____ No _____			
ADDITIONAL COMMENTS:			

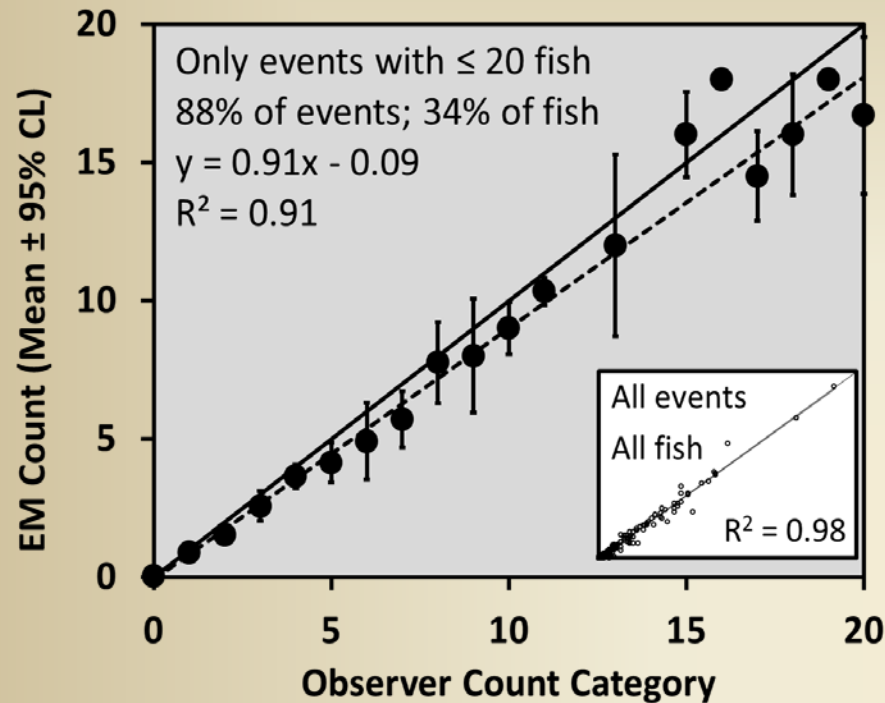
Observer
record



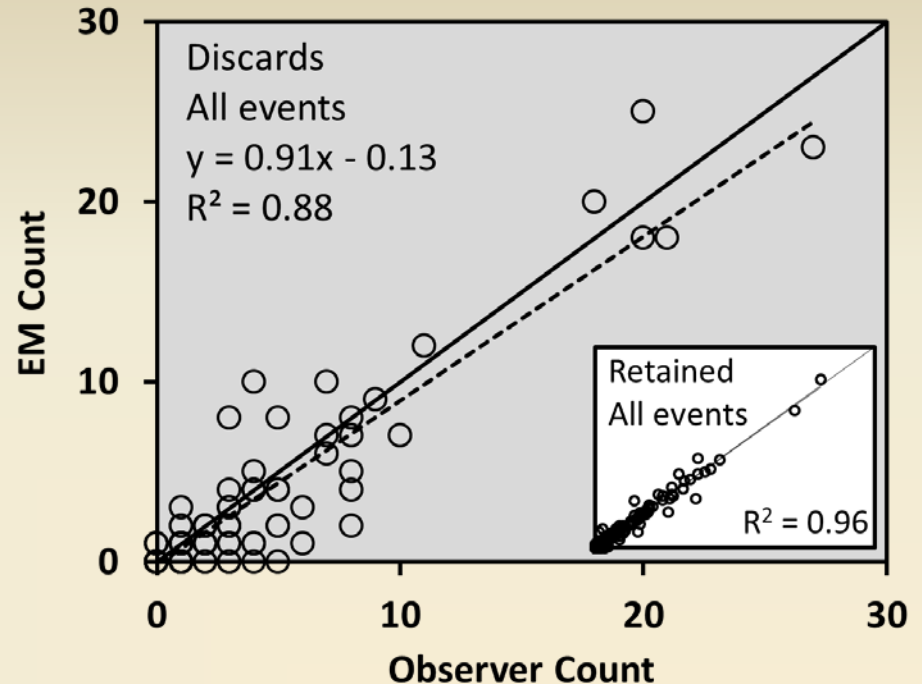
Study Area: U.S. South Atlantic off NC, SC and GA



Fish Count Comparisons

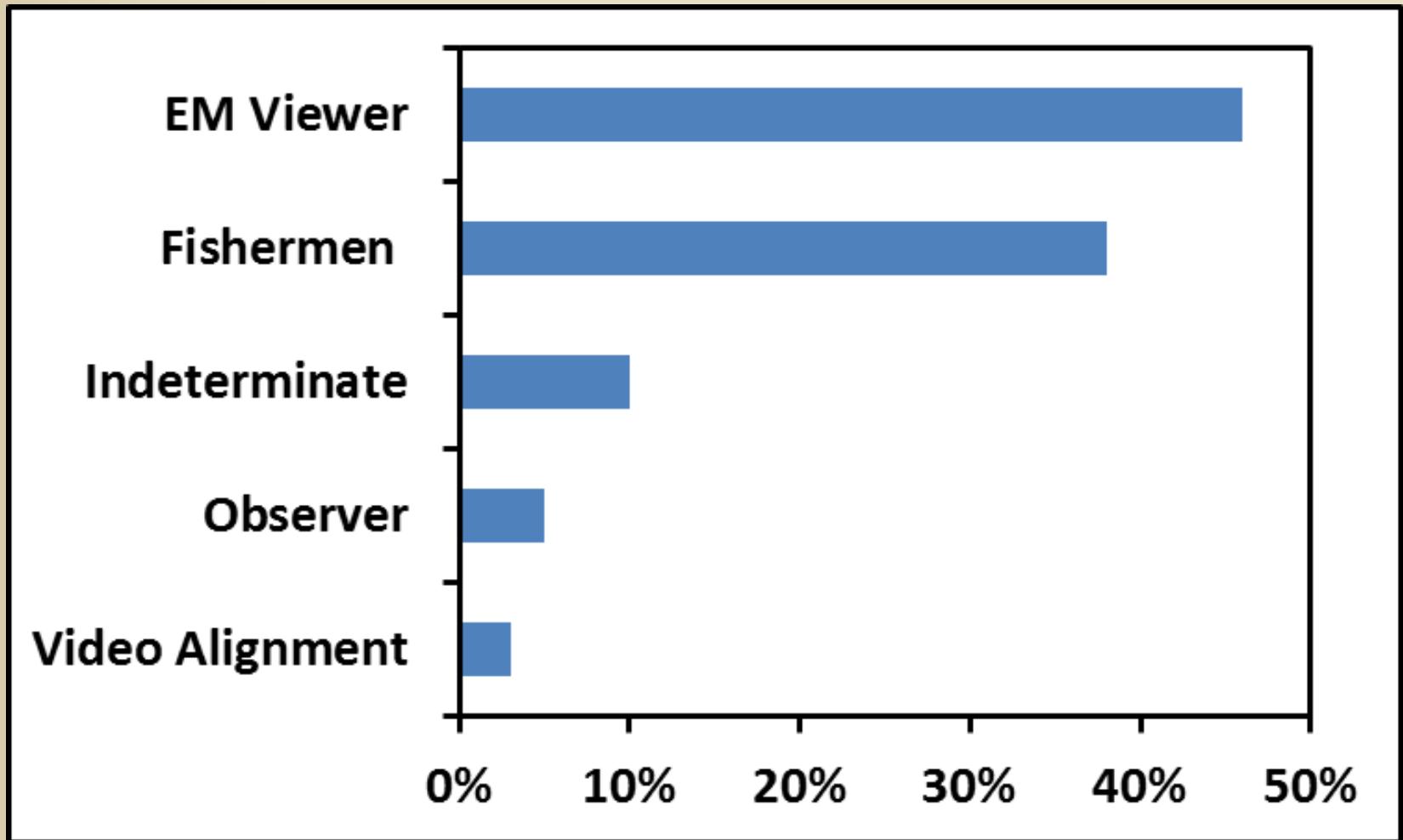


Low catch numbers
dominate most
fishing events



EM viewer better at
documenting
retained than
discarded catch

7% of Observed Hooks Missed by EM Viewer



Species Identification by EM



Principle Challenges for EM Use

- Fishermen incorrectly assumed multiple cameras would capture all activity – not so.
- Lack of incentive in pilot projects for fishermen to adopt standardized fish handling procedures to improve on EM review process.
- Clear management objectives of EM use need to be decided upon – can not be “do everything” – must prioritize.

Conclusions

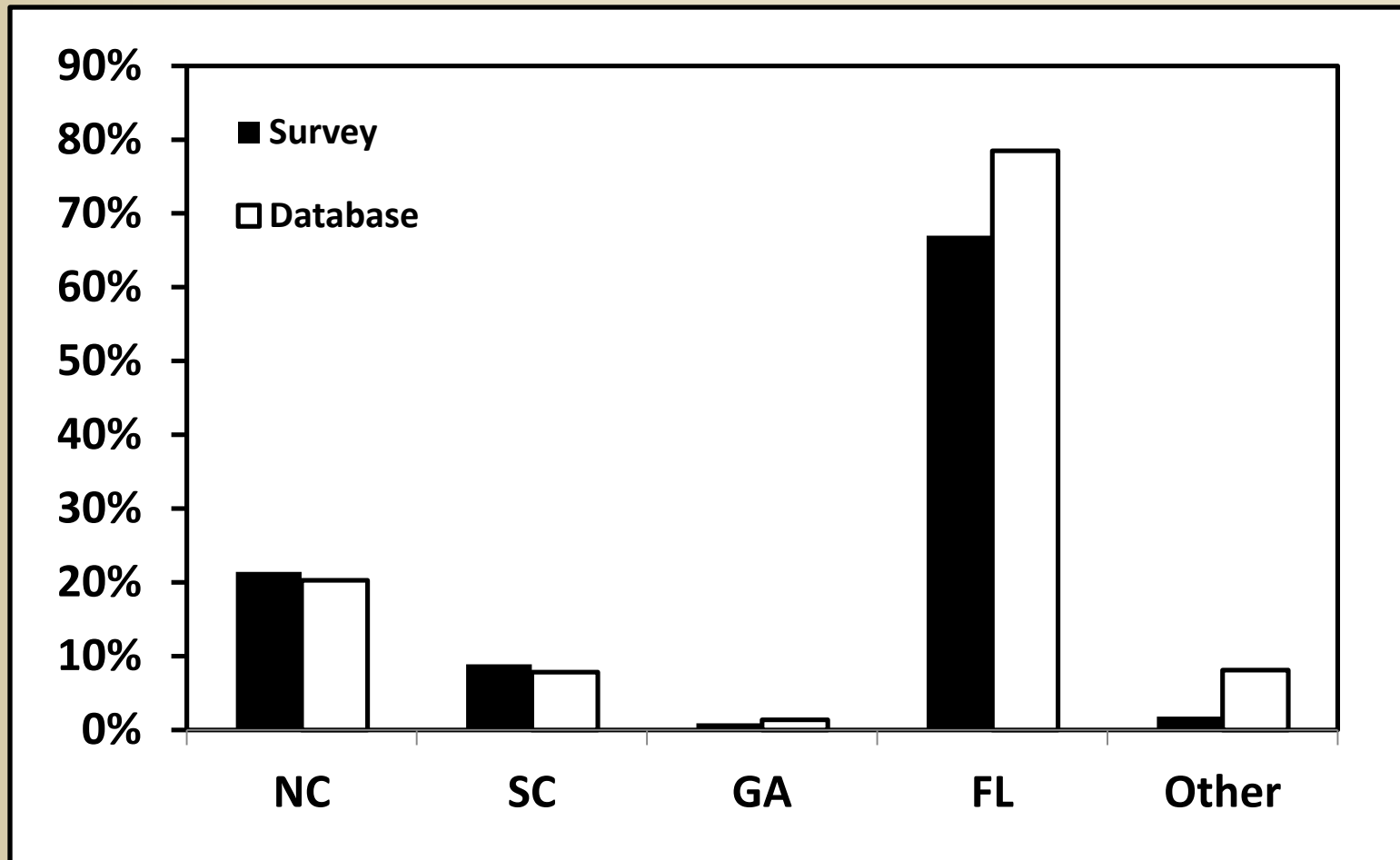
- **Need to improve discard counts by EM viewer (14% of observer catch total).**
- **Fixed EM camera positions and imagery obtained were capable of recording most hooks fished.**
- **EM viewer indicated that the largest impediment to successful catch documentation was a poor view of fish. Recommend catch handling procedures.**
- **Explore use of incentives / disincentives – beyond scope of this pilot study.**
- **Design logbook to allow for EM audit-based approach.**

Presentation Outline

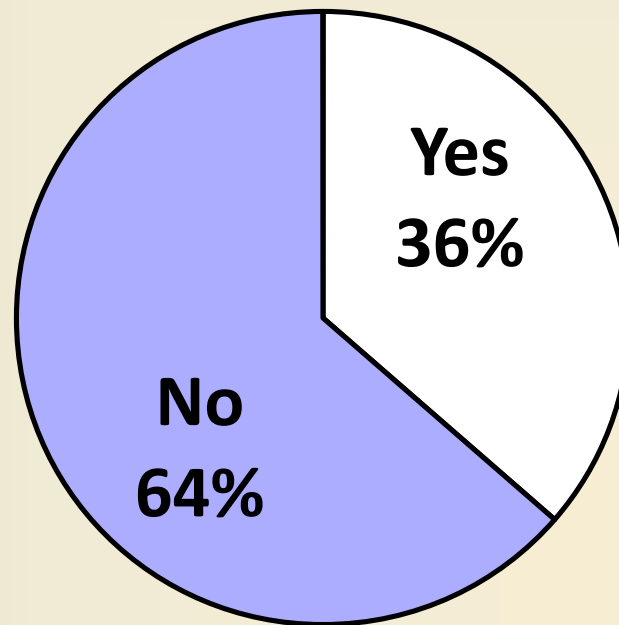
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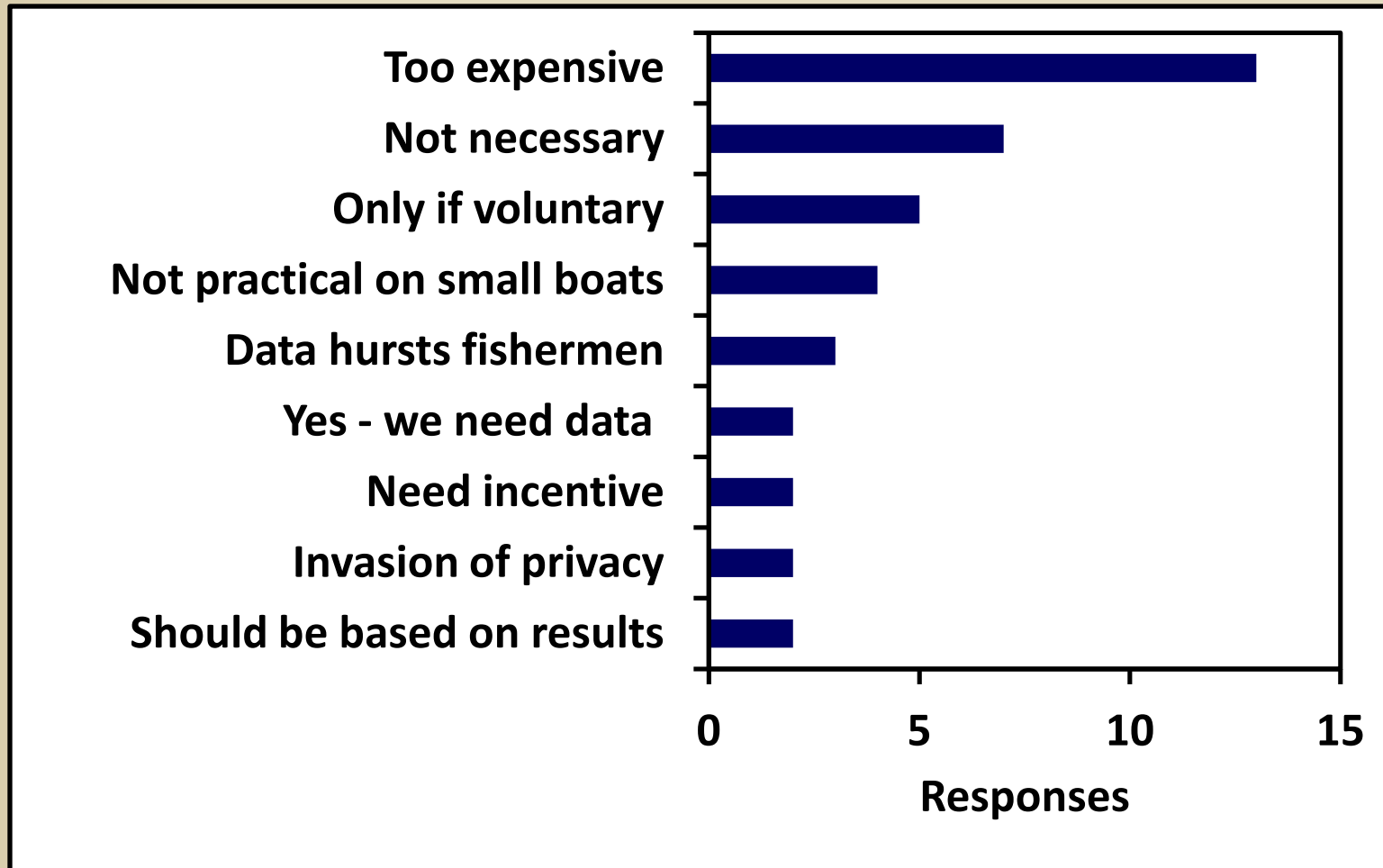
EM Survey Response = 15%



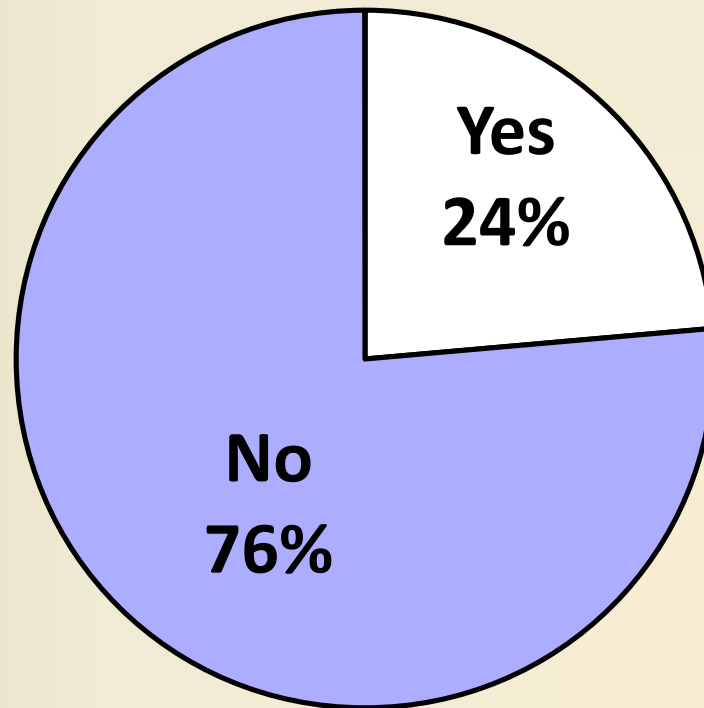
Q. Would you like to see additional cooperative research done testing and evaluating at-sea EM systems?



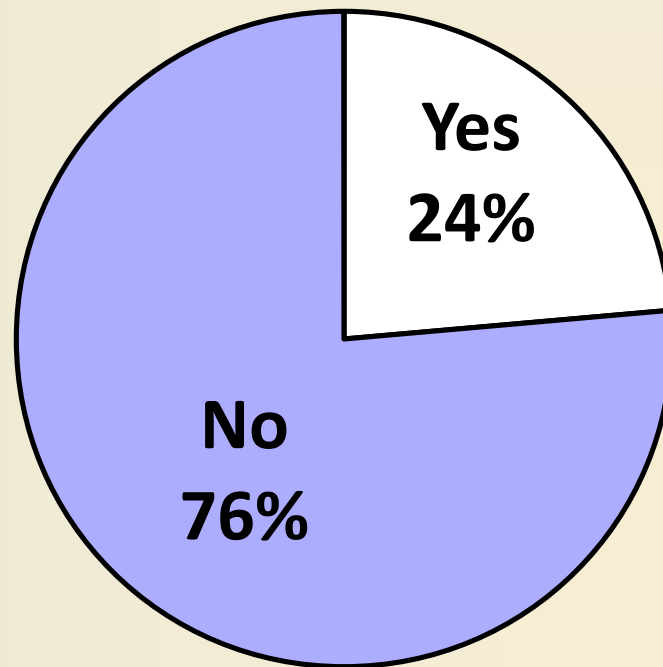
Open-ended responses to Question



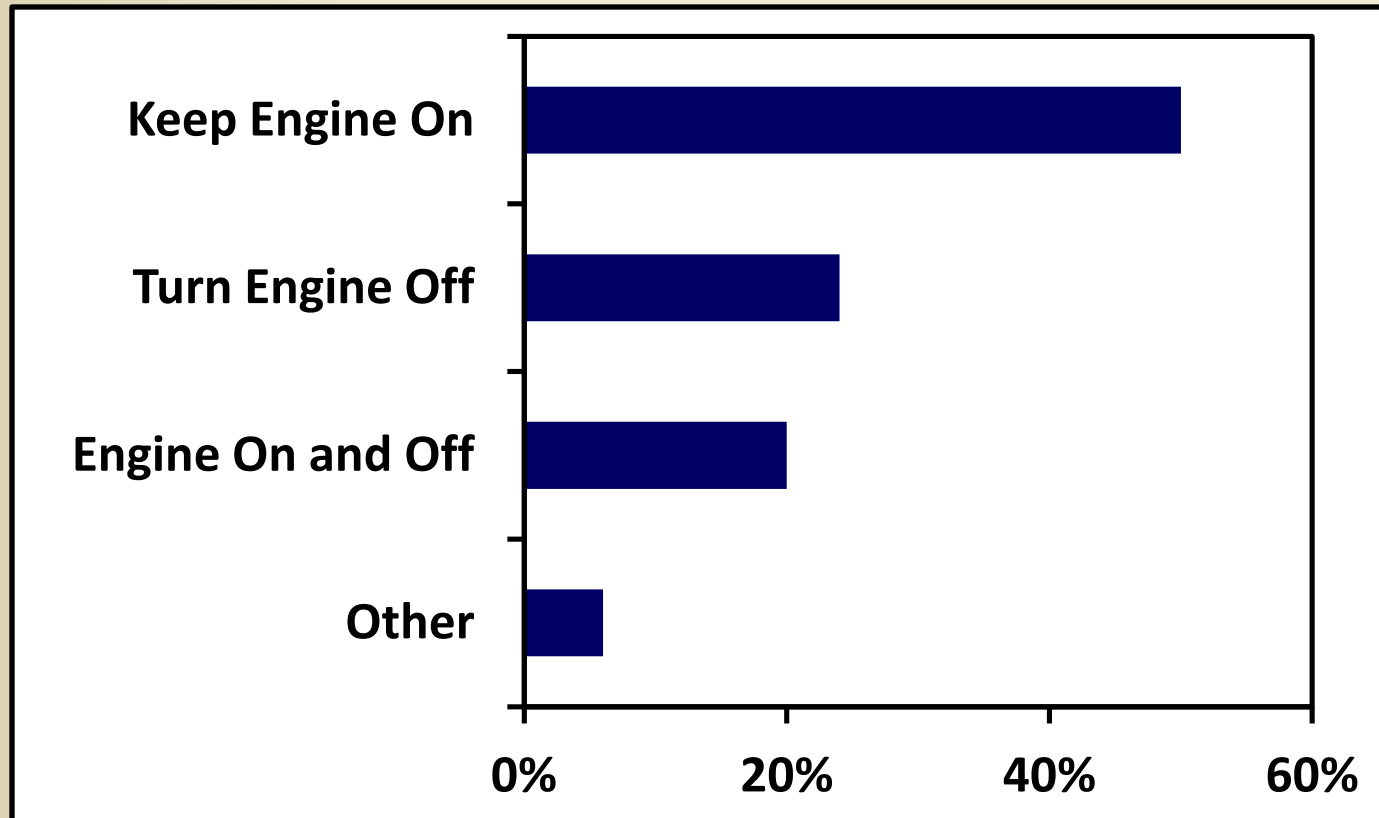
Q. Do you support the concept of using a third-party data review method like EM to validate logbooks records?



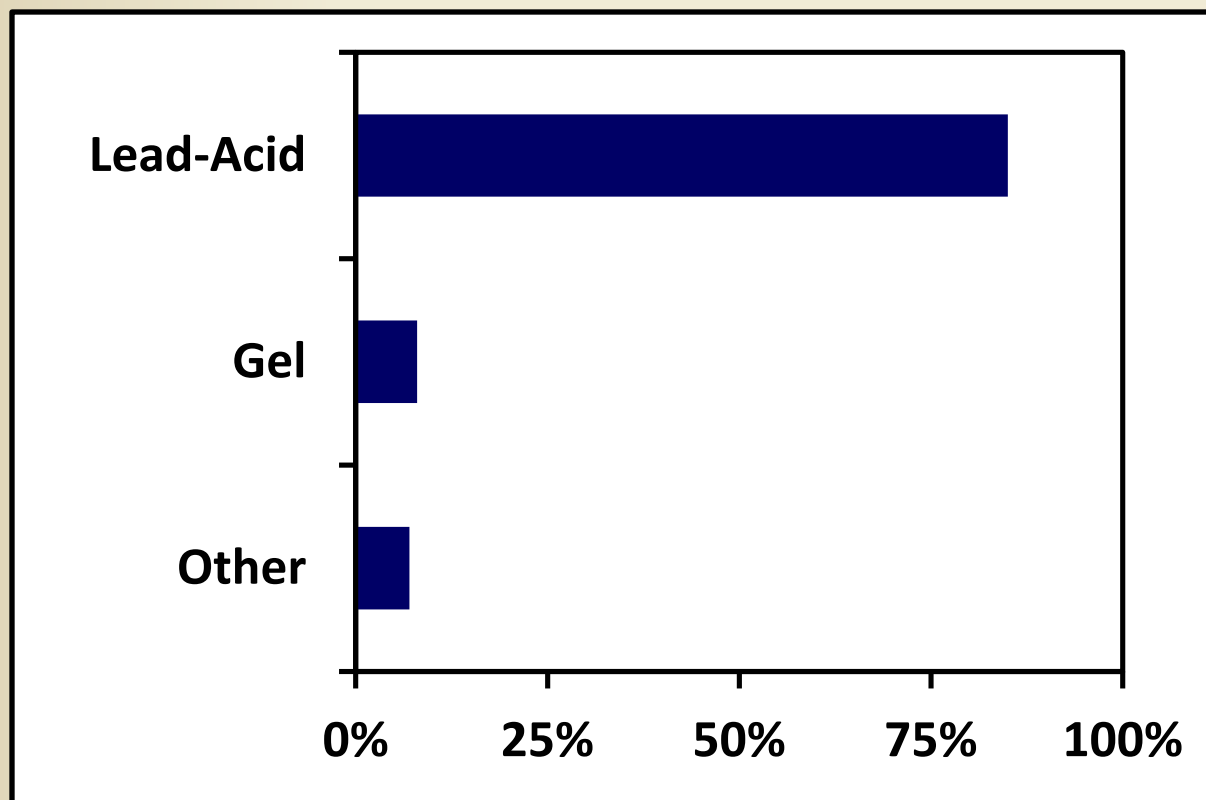
Q. The video processing company we used suggesting adopted standardized guidelines for handling fish to make video review quicker and more cost effective. Do you support the adoption of standardized handling guidelines to improve the video review process?



Q. While actively bottom fishing (making more than a few test drops) do you typically leave the engine running or turn the engine off?



Q. On your vessel, what type of batteries do you use for your “house” bank? This bank of batteries would power auxiliary equipment like electric bandits, plotters, radios, lights, etc.



Conclusions

- **Greater industry not supportive of additional EM research, let alone EM implementation in this fishery. No specific Q asked about VMS...**
- **Fishing styles and battery configurations on some boats may not be well suited for additional electronic loads like EM or VMS.**
- **Anecdotal evidence suggests that newer and lighter “gel” batteries may be better suited to hosting EM and VMS equipment. Should be further explored.**

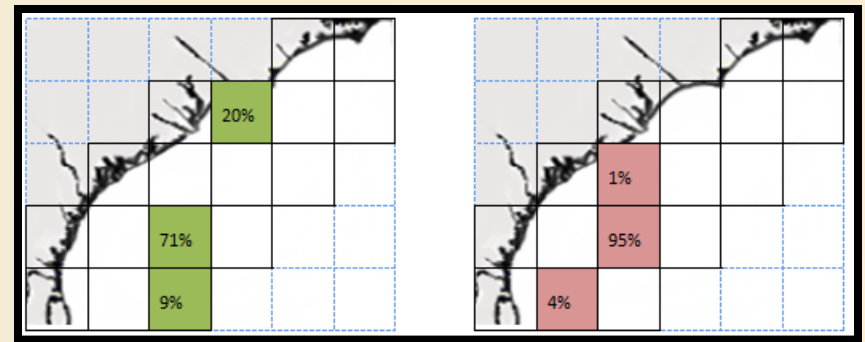
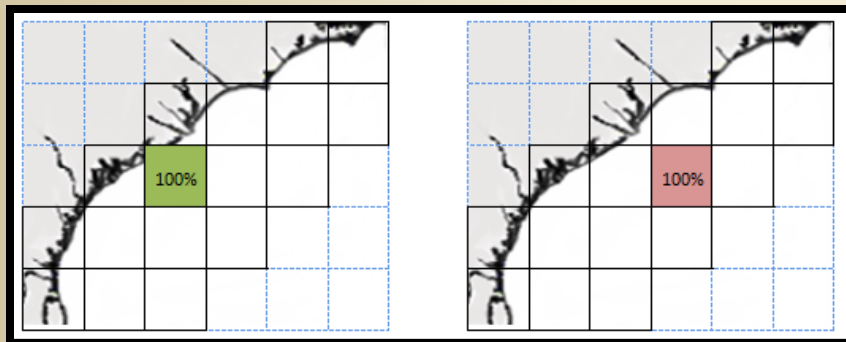
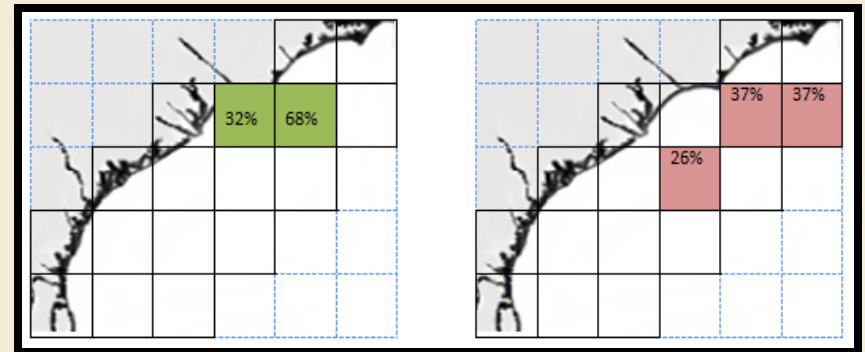
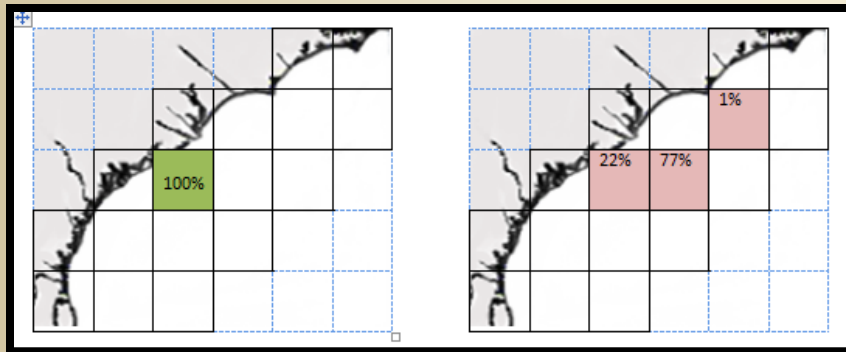
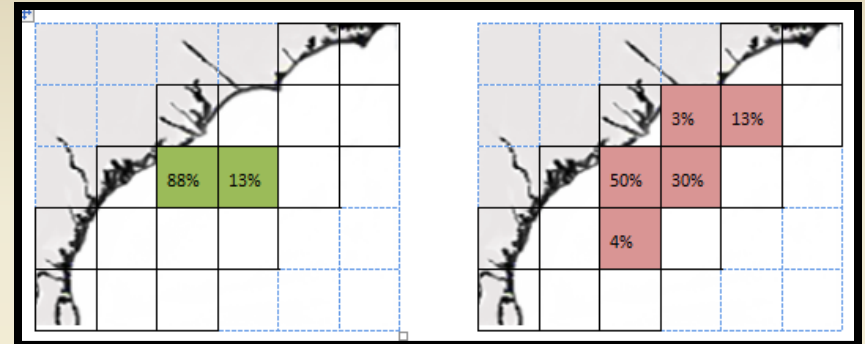
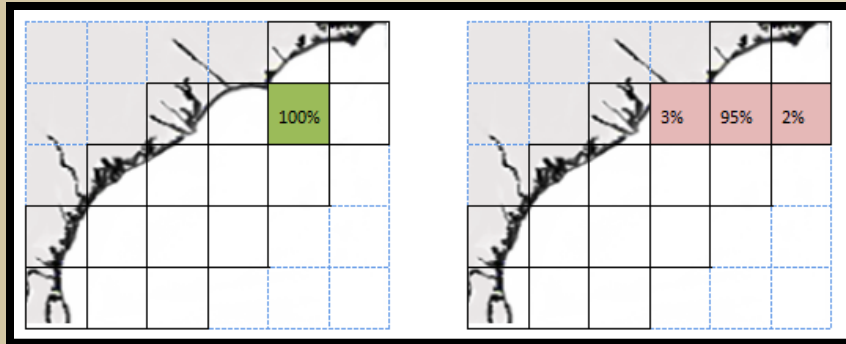
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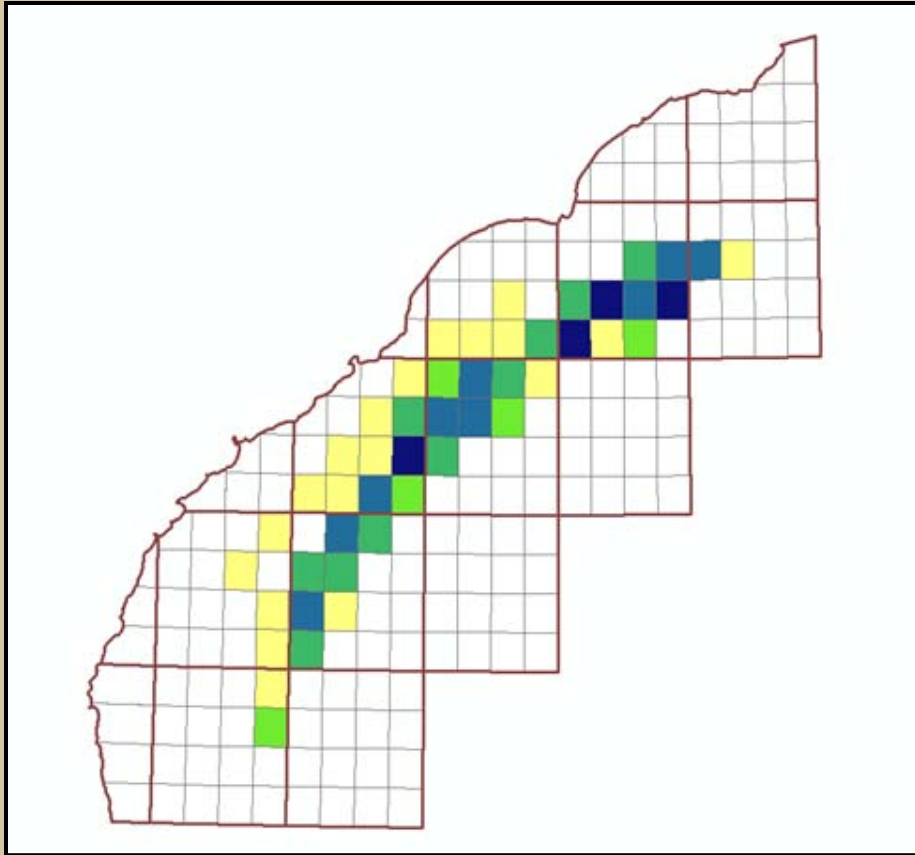


EM Data Can Validate Logbook Effort:

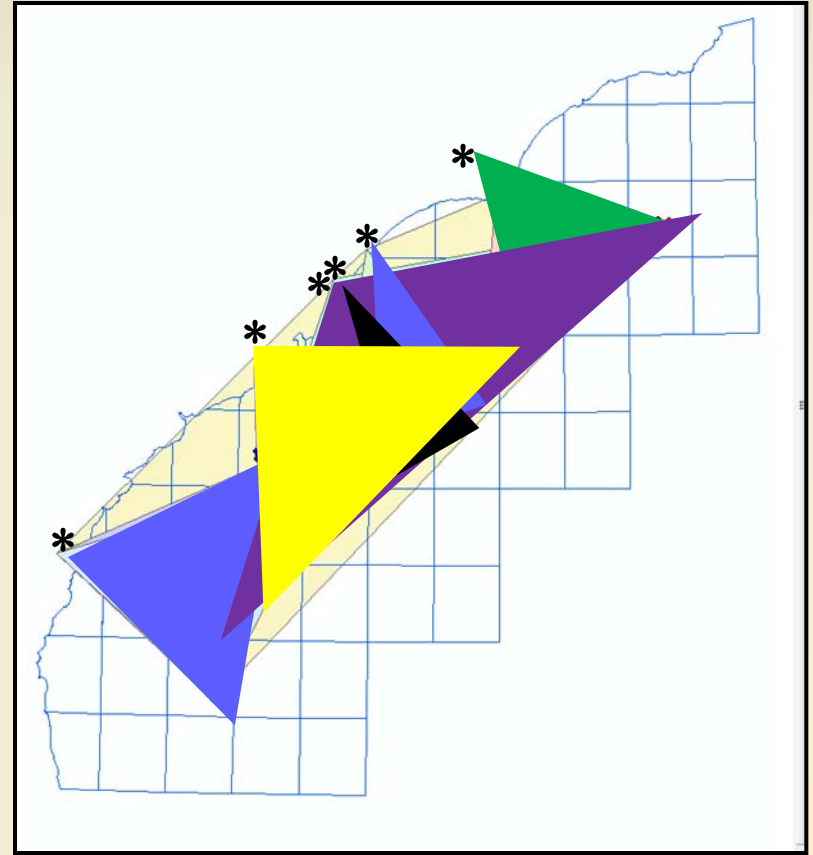
Logbook (green) vs. EM (red) for 6 vessels (all trips)



EM Data Can Refine Logbook Design



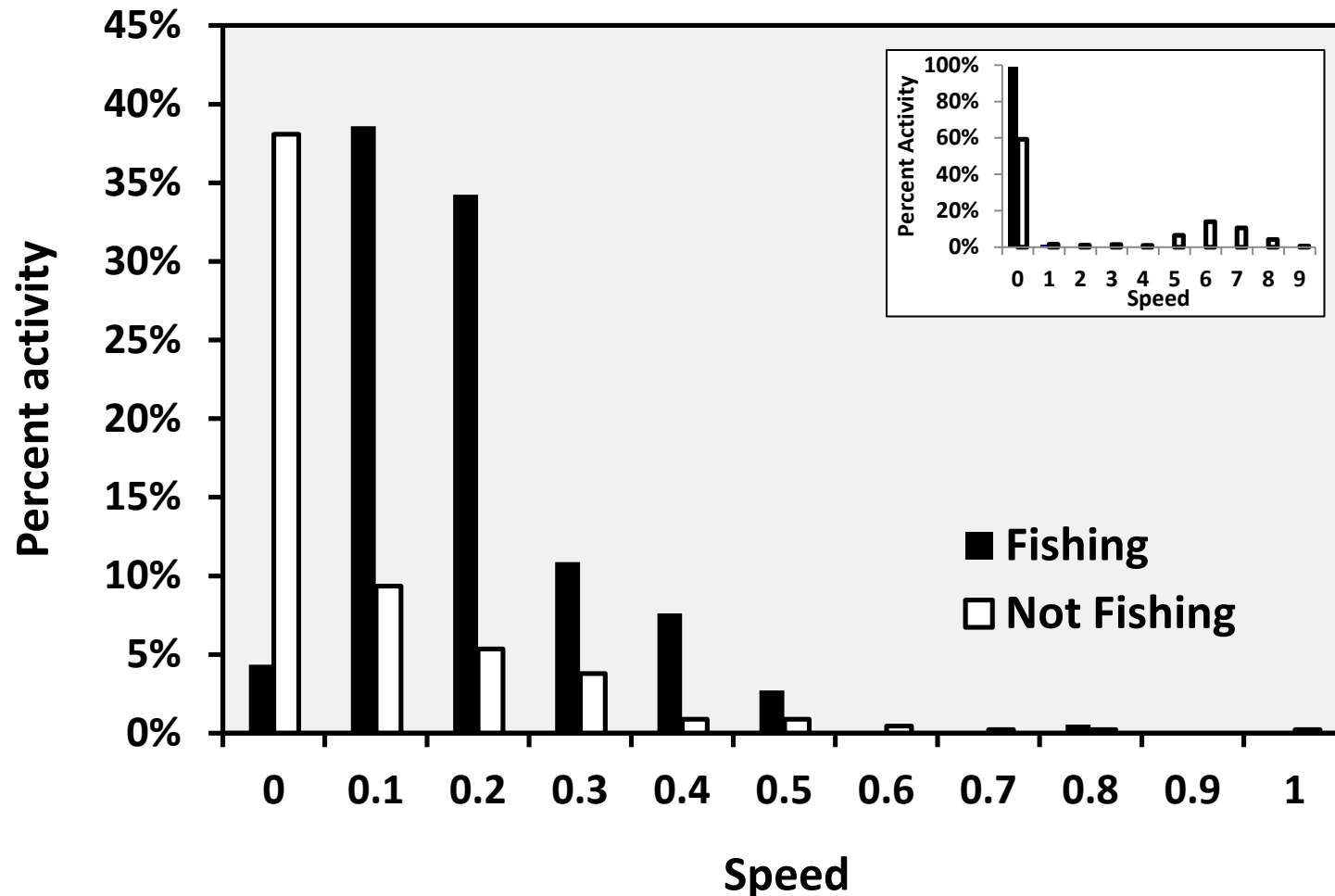
Eliminate non-fished areas



Vessel range

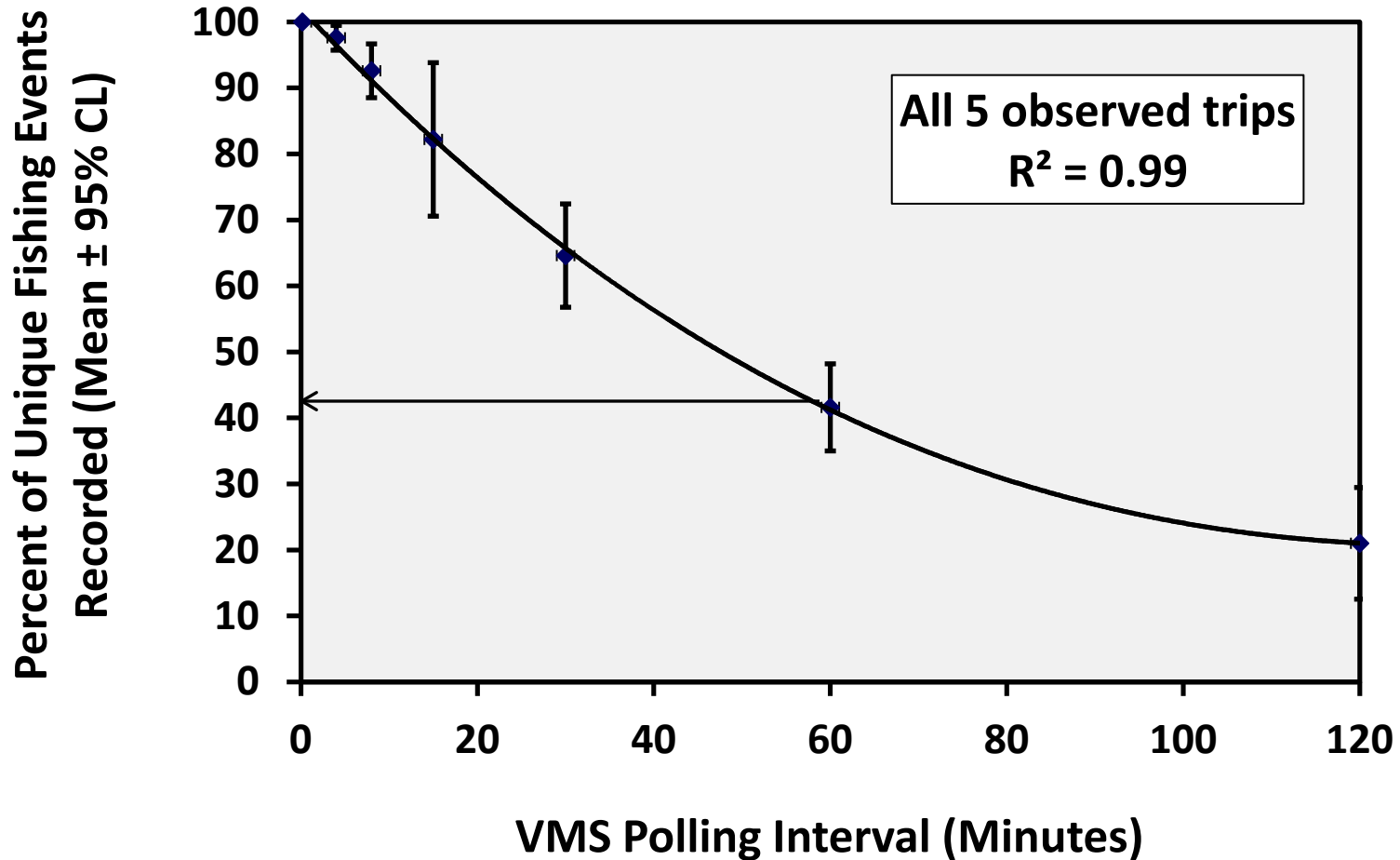
VMS Challenges:

Speed Alone Not a Good Indicator of Active Fishing



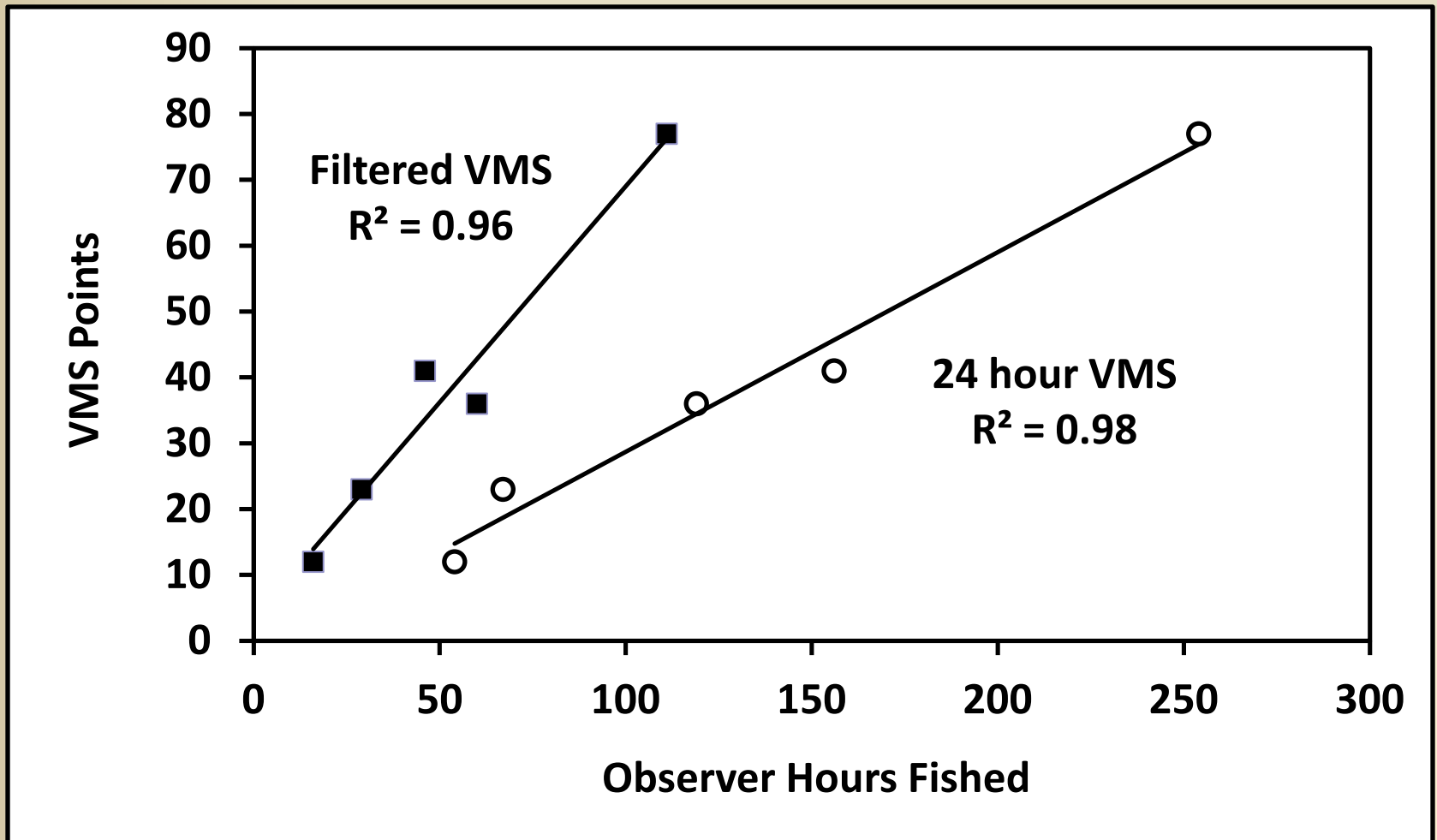
VMS Challenges:

Ping Rate Determines Resolution of Fishing Locations



VMS Opportunities:

Can VMS Points Replace Self-Reported Logbook Effort?



Other Monitoring Methods

- **Simple Electronic Data Loggers (<\$500); lower cost alternative to VMS to track individual vessel movement; standard ping rate can be increased without cost**
- **Drones (Fly-over of MPAs) and Satellite Imagery – only affects those users potentially breaking the law by being in MPA**
- **Listening Buoys**

