

Tab D, No. 4(b)



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Progress Report

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Expanded Sampling of the Fleet for Effort Monitoring in the Gulf of Mexico Shrimp Industry



Outline

- Background
 - Problem
 - Past work
- Goals & Timeline
- Results
 - Software Update Status
 - Desktop Testing
- Next steps
 - Vessel Testing
- Questions

Background

- Monitoring shrimping effort is important.
 - Assessing how shrimping impacts others
 - Calculating takes and assessing potential for interactions with sea turtles
 - Red Snapper stock assessments
 - Assessing how others impact shrimping
 - Artificial reef placement
 - Infrastructure associated with marine-based energy
 - Aquaculture siting

Background

- Previously, monitoring was achieved with a cELB (cellular electronic logbook)
 - Vessel speed is indicative of fishing behavior, shrimp towing occurs between 2 and 3.8 knots.
 - By recording a boat's (1) latitude/longitude and (2) date/time vessel speed can be estimated.
 - Recording these two standard data elements at 10-minute intervals over the length of a trip allows the amount of towing time (effort) to be calculated.
 - Data were transmitted via 3G cellular networks (Verizon), but in December 2020 Verizon discontinued 3G service
 - Data is recorded to cELB, but there is no mechanism for automatic retrieval



Background

- Shrimping industry stakeholders suggested that existing navigational software on shrimp boats could be used to obtain the same data as recorded by cELBs
- Southern Shrimp Alliance (SSA) funded LGL Ecological Research Associates to work with the P-Sea WindPlot developer to modify the software to record the same information as the existing cELB program (location data at 10-minute intervals) in a way that would be compatible with existing software routines that use that data to calculate shrimping effort.
- These efforts were successful, but no mechanism exists in P-Sea WindPlot to automatically transfer data.

Goals and Timeline

- The GMFMC funded 'Expanded Sampling of the Fleet for Effort Monitoring in the Gulf of Mexico Shrimp Industry' with the following five objectives:
 - (1) update P-Sea WindPlot so that it electronically transmits ELB files with the latitude/longitude and date/time in the format used in the cELB program to a specified destination (e.g., server);
 - (2) develop a mechanism by which computers using P-Sea WindPlot can connect to a mobile communications services network;
 - (3) conduct initial tests on five commercial shrimp boats from across the Gulf of Mexico;
 - (4) troubleshoot and revise software/hardware and implementation protocols as necessary;
 - (5) conduct secondary tests on twenty additional commercial shrimp boats.

Goals and Timeline

Study Components	2022										2023		
	M	A	M	J	J	A	S	O	N	D	J	F	M
Modify P-Sea WindPlot software	X	X	X										
Select vessel participants		X					X						
Install software and hardware			X					X					
Field testing on vessels				X					X				
Analyze data					X					X			
Revise software / hardware						X	X				X	X	
Prepare report				X						X		X	X
Present to Shrimp Advisory Panel						X					X		
Present to Council						X					X		

Results

- Software Update
 - An FTP client was successfully added to P-Sea WindPlot
 - Secure Shell (SSH) transfers files to a designated server
 - At the start of a new trip, P-Sea WindPlot automatically writes a file designated by unique ID based on either the MMSI number for the boat (an AIS designation) or the P-Sea WindPlot Key and the date/time the trip began.
 - Every 10 minutes, the date/time (GMT) and lat/lon are appended to this file.
 - If the computer is connected to internet, every 10 minutes this file is transferred to a designated server.
 - If the internet connection is lost, data continues to be recorded and upon re-connection with the internet, files are automatically transmitted to the server.
 - File naming conventions and processing ensure that no duplicate files are transmitted to the server.

Results

- Desktop testing
 - Computer wired with GPS and updated version of P-Sea WindPlot
 - Verizon hotspot used as connection
 - Local LGL server used as repository
 - Success - simulated logged ELB files sent automatically to server from P-Sea WindPlot upon connection to internet signal
 - Success – P-Sea WindPlot continues to log data when hotspot out of range
 - Success – P-Sea WindPlot automatically reconnects to hotspot when in range and transmits unsent data, seamlessly continues transferring data thereafter



Next Steps

- Vessel testing
 - Preliminary field tests – 5 commercial shrimp vessels
 - By July 15, TX open
 - Roll out – 20 additional commercial shrimp vessels
 - Geographically representative sample
 - Installation help from Jody Esfeller
 - Field testing during 3rd trimester
- Updates throughout the project period (March 2022 – March 2023)

Questions?



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