

Shrimp Effort Data Collection Program:

- 1960 – late 1990s: Port agents interviewed shrimp boat captains on their return to port.
- There were port agents in every major port area in the Gulf of Mexico.
- Data collected included area fished – statistical subarea(s) and depth zones (5 fm intervals) (Termed: location cells).
- As trips got longer in time away from port – the data on area fished became less precise.
- Late 1990s, early 2000s LGL, in association with the shrimp industry, stated to work with NMFS Galveston Laboratory to develop an automatic method to collect effort data. Termed the Electronic Monitoring System (ELB).
- System was “home-made” and included an SD card for data storage, GPS antenna, and electrical system (AC or DC depending on vessel). Vessel position data was collected every 10 minutes and stored on SD card. SD card was collected by LGL personnel and new card was provided and installed in the unit. The program was never intended for real time position detection. It was only used to collect position data used for effort data calculations.
- Funding for program was a congressional line item to the Southern Shrimp Alliance. Money was passed to NMFS for contract with LGL to provide the shrimp effort data.
- Effort data calculation: For each month the total pounds from all the trips in a given location cell was divided by total effort (hours) for all the trips in that same location cell. This produced an average CPUE for that month and location cell. This average CPUE was multiplied by the total pounds of shrimp landed from that location cell to get the total effort.
- Congressional line item funding ended around 2011? NMFS became the responsible source for the money to continue the program.
- If NMFS took over the program - The method to pick up the SD cards would be an issue. Also, the funding for the program was an issue. Development of a new system was needed to collect the shrimp effort data.
- The type of data collected by the initial ELB program was excellent – no change needed. Needed to develop an automatic pickup system, and develop a new ELB that could send the data directly to a computer.
- NMFS began to look for new ELB. Assigned a software engineer at Stennis Laboratory to develop the new ELB unit.
- Found a very nice 3G System in production from Microtech Electronics. Used on commercial systems to track 18-wheel trucks and other commercial vehicles (i.e., ambulances, delivery trucks, etc.). The unit was programmable, had ability to collect and store GPS locations, and send the data over the 3G network.
- Stennis engineer ordered two units (box, SD card and thumb drive, 3G/GPS antenna, and power units). Initial programming began around 2013. Unit was termed a Cellular Electronic Logbook (cELB) to separate it from the original ELB unit type still being used on the shrimp vessels.
- Software Program – 1) Collected a GPS location every 10 minutes, store the data as a unit number/date/time/location stamp on the SD card, with a backup on the thumb

drive; 2) Look for a non-roaming cellular tower to send the stored data into NMFS network; 3) Mark the data when successfully sent and received by the computer network; 4) electronic certificate was needed with the data to allow entry into the NMFS network system.

- Once developed the cELB system was tested in a moving laboratory vehicle, NOAA Ship Oregon II, and NOAA Ship Carretta. Excellent results with regards to speed and location.
- Six additional units were ordered and placed on six shrimp vessels for testing. Cellular bills were paid by NMFS for these test units. After a few months of evaluating the units, it seemed the units would work well to collect, store, and send the needed information.
- Year-end money was found at Pacific States Marine Fisheries Commission and around 800 units (box, extra length GPS/Cellular Antenna, thumb drive, SD Card, DC Power Unit, and AC Power unit). Pelican Cases were also order to help keep the units out of the elements on the shrimp vessels.
- Once the units came to the office, 500 shrimp vessels (permits) were randomly selected to carry the system and letters were sent out. Letters contained the method to get cellular coverage for the unit, and instructions on contacting our office. It should be noted that if the vessel had an original ELB, that unit was kept active and comparisons were made between the data collected from the original ELB and the new cELB units.
- Once NMFS was contacted by the vessel personnel the unit assigned to that vessel was provided with a unique number assigned to that vessel, programming instruction software installed, and unit tested at the Galveston Laboratory. Prepaid shipping containers were used to send the programmed box, extra length GPS/Cellular Antenna, thumb drive, SD Card, DC Power Unit, AC Power unit, and Pelican case, with installation instructions to the vessel personnel.