Bottom Longline Discard Summary for Greater Amberjack, *Seriola dumerili*, with Focus on the West Florida Shelf: Application of Electronic Monitoring

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SEDAR 70 Gulf of Mexico Greater Amberjack

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The Center for Fisheries Electronic Monitoring at Mote (CFEMM) has continued to cultivate a network that utilizes a diverse team of scientists, fishers, and trained professional volunteers (citizen scientists) with the goals of expanding the use of EM as a monitoring tool on commercial vessels in the Gulf of Mexico (GoM) snapper grouper fishery, developing a regional capacity for EM, and be proactive in providing data in appropriate formats for industry and management applications.

Video Sample Selection Protocols - Approximately 25% of complete BLL set-haul events (SHEs) are randomly sampled from each trip using a "random-sampling-without-replacement" technique. In order for a SHE to be "complete" or reviewable, it must meet a series of operational criteria relating to properly working EM hardware (e.g. cameras, sensors, GIS, etc.). Screening prior to video review eliminates unsuitable hauls from the selection pool before the 25% is selected (Figure 1).
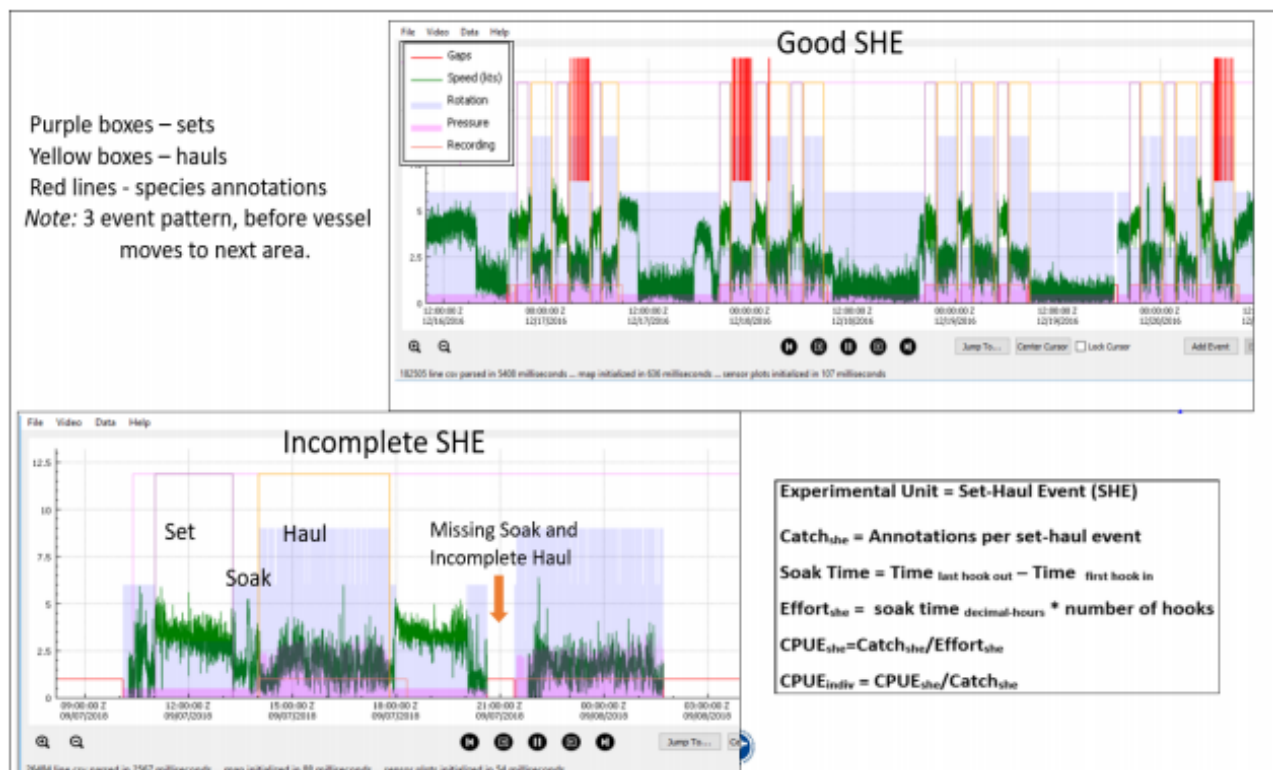

Figure 1. Examples of a vessel timeline segment with set-haul-events (SHEs) (top right) that meet criteria for review and a second (bottom left) with incomplete SHEs, not included for review. The examples include labeled elements and definitions of catch ratio calculation elements from Scott-Denton, 2011.

After annotation, calculations and additional variables are added to the annotation dataset depending on the type of analysis to be performed. These additional variables primarily include environmental, oceanographic, meteorological, and geographic elements. The modified annotation dataset is used for model development, habitat assessment, GIS density and hotspot analysis, point pattern analysis, and development of fishery statistics to include

disposition of all catch and bycatch. Data used in this report were aggregated using an automated coding process developed by R. Schloesser, CFEMM team member.

*Note: During 2019, additional BLL vessels were added to the EM Study fleet from Galveston TX. Because the vessels were added in 2019, this report to SEDAR includes only data from vessels fishing east of Mobile Bay. Vertical line (VL) or "bandit" vessel data was also excluded from the presented data. The entire CFEMM Master Dataset contains over 60,000 records from 18 GoM commercial reef fish vessels.

The WFS BLL portion of the presented Greater Amberjack (GAJ) dataset includes annotations from 07/2016 to 01/2020 and encompasses the following:
- Records: ~ 45,000
- Trips: 165
- Seadays Fished: 1499
- Hauls Reviewed: 901
- Vessels Participating (within subset): 7

Greater Amberjack are not a target of BLL vessels in the GoM. Though GAJ catch represents a small percent of the total catch, the large amount of fishing effort allows for this data to accurately represent the BLL fleets handling of this species in the region. Based on CFEMM review, all documented individuals arrived at the vessel alive without predator or other physical display of damage (Table 1).

Table 1. Condition on arrival for Greater Amberjack for bottom longline vessels fishing the West Florida Shelf from 07/2016 through 01/2020.

Condition On Arrival	2016	2017	2018	2019	Total
Live - Healthy	59	22	18	11	110
Live - Stomach and/or Eyes Protruding	0	0	0	1	1
Total	**59**	**22**	**18**	**12**	**111**

The fate of GAJ aboard the BLL vessels can vary widely depending on changes in closed seasons and size limits (Table 2). Without taking into account the reasons for discarding, seven of 111 (6.3%) of the total GAJ catch was killed or damaged before release. Poor handling, such as the use of gaffs, was the primary cause of damage just prior to release of individuals that were otherwise documented as healthy individuals. Additional detrimental handling efforts are reflected by the number of individuals vented. In this case, 79 of 91 (86.8%) were released without any venting attempt. The majority of GAJ recorded were large individuals based on observations from video reviewers, though this cannot be quantified at this time.

Table 2. Fate of Greater Amberjack documented for bottom longline vessels fishing the West Florida Shelf from 07/2016 through 01/2020.

Catch Fate	2016	2017	2018	2019	Total
Discarded - Dead	0	0	0	1	1
Discarded - Live and Damaged (Not Vented)	1	0	4	0	5
Discarded - Live and Healthy (Not Vented)	55	12	10	2	79
Discarded - Live and Healthy (Vented)	3	2	2	0	7
Retained	0	8	2	8	18
Retained as Bait	0	0	0	1	1
Total	**59**	**22**	**18**	**12**	**111**

Greater Amberjack catches were dispersed throughout the WFS fishing area (Figure 3) with higher CPUE occurring in the Southwestern portion of the fishing area (Figure 4).

The CFEMM continues to collect EM data Gulf wide, and can provide an update to these data in the near future. The CFEMM has additional GAJ data from Vertical Line vessels (4 TX, 1 FL), and from additional BLL vessels (2TX, 2 FL).
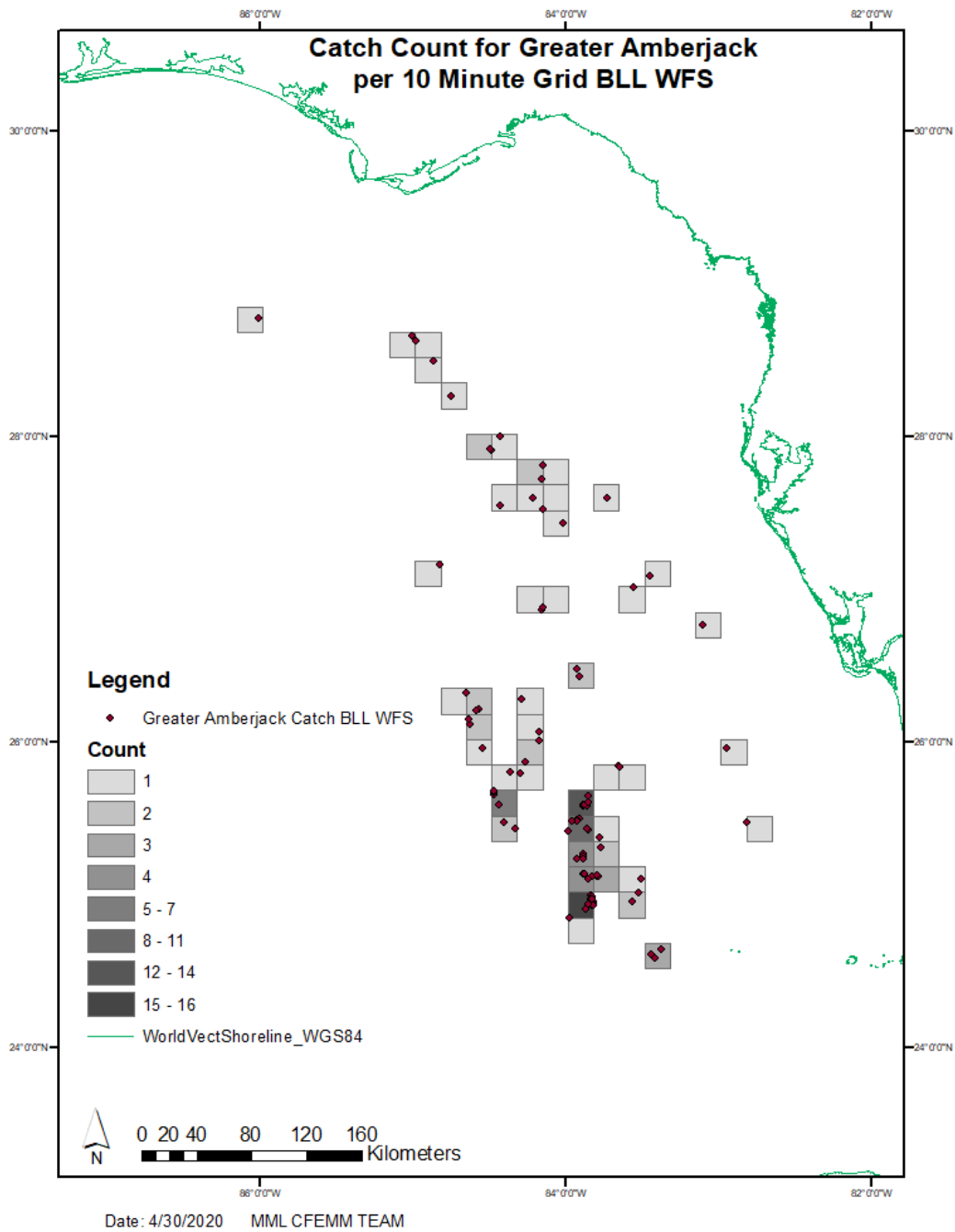
Figure 3. Greater Amberjack catch frequency from bottom longline vessels fishing the West Florida Shelf from 07/2016 to 01/2020, using a 10-minute grid (n=111).
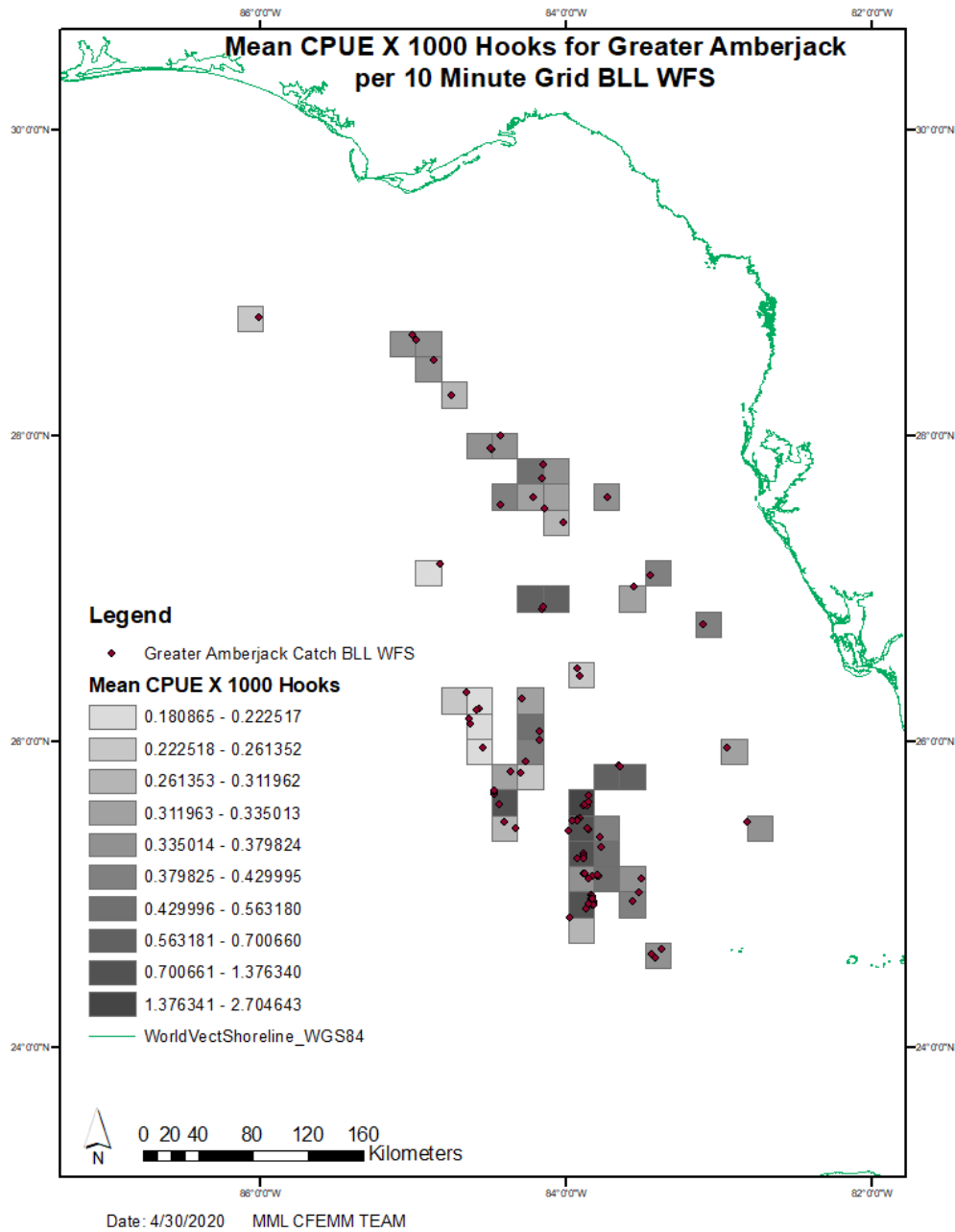
Figure 4. Greater Amberjack catch per unit effort (CPUE) per 1000 hooks from bottom longline vessels fishing the West Florida Shelf from 07/2016 to 01/2020, using a 10-minute grid (*n*=111).