Some information on grey triggerfish from the GOM EM LL Reef fish database

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To: **Gulf of Mexico Fishery Management Council**

From: **Daniel Roberts, Research Scientist, WaterInterface LLC**

Carole Neidig, Scientist, Mote Marine Laboratory

Subject: Grey Triggerfish

Carole had asked me to give you some information on grey triggerfish from our GOM EM LL Reef fish database in response to your request to stakeholders.

The experimental unit for LL fishing is the individual set-haul-event (SHE).

Our data is based on a 25 % random post-trip sample of set-haul-events (SHE) from each vessel (5).

CPUE for individual species is calculated as:

Total CPUE per SHE = Total annotations per SHE/soak-time (decimal hours) X 750 hooks.

CPUE for individual species = CPUE (SHE) X individual species annotation / total annotations all species per SHE .

So theoretically, you can multiply our annotations, and effort values (fish landed based on 25% random sample) by 4 to get an estimate of total catch (fish landed prior to discards) and effort. CPUE, however would remain about the same as catch and effort would be multiplied by 4 but the ratio would remain approximately the same.

Since July, 2016 through October, 2018 only 90 were annotated (caught). Mean CPUE per individual grey triggerfish was 0.000397 (Figure 1).

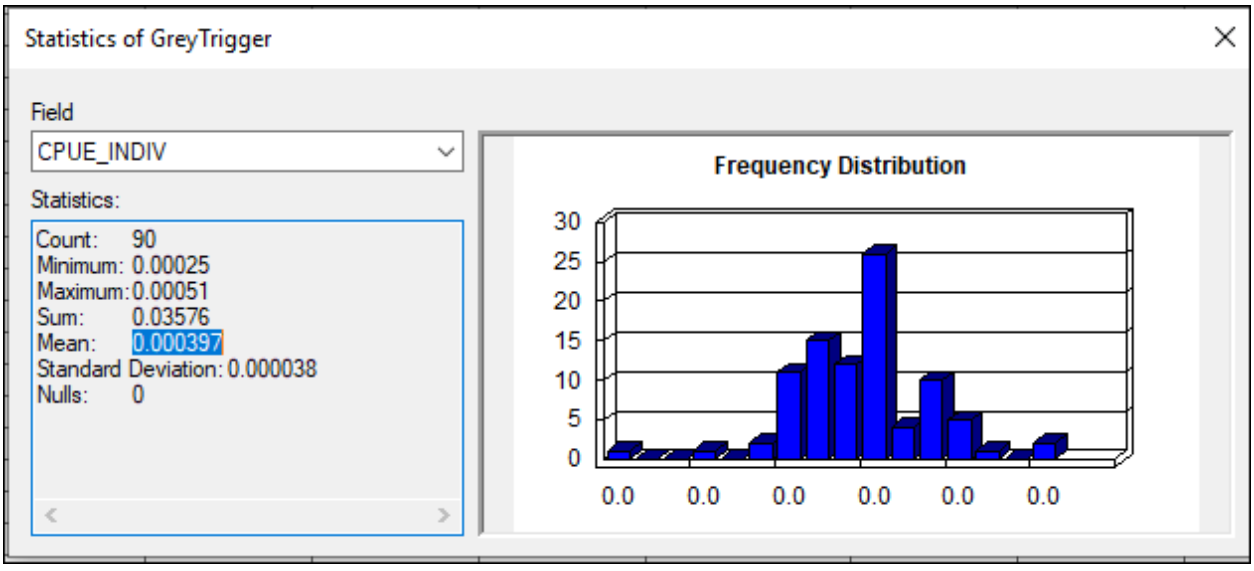

Figure 1. Grey triggerfish CPUE statistics from July, 2016 through October 2018.

The Annotation dataset presently contains a total of 559 annotated set-haul events including 25,515 total annotated records from five longline vessels as dependent monitoring commercial entities. This does not include the MML historical database acquired using Archipelago Marine

Research (AMR) EM equipment and data associated with pilot studies. The database is also comprised of 109 individual trips beginning July 2016 and ending October 2018. The average total catch (annotated all species) per trip was 234 or 64.7 per set-haul-event when partitioned by set-haul.

Grey triggerfish geographical distribution is presented in figure 2. They were caught between 40 and 100 meters water depth due west and northwest of Tampa Bay.

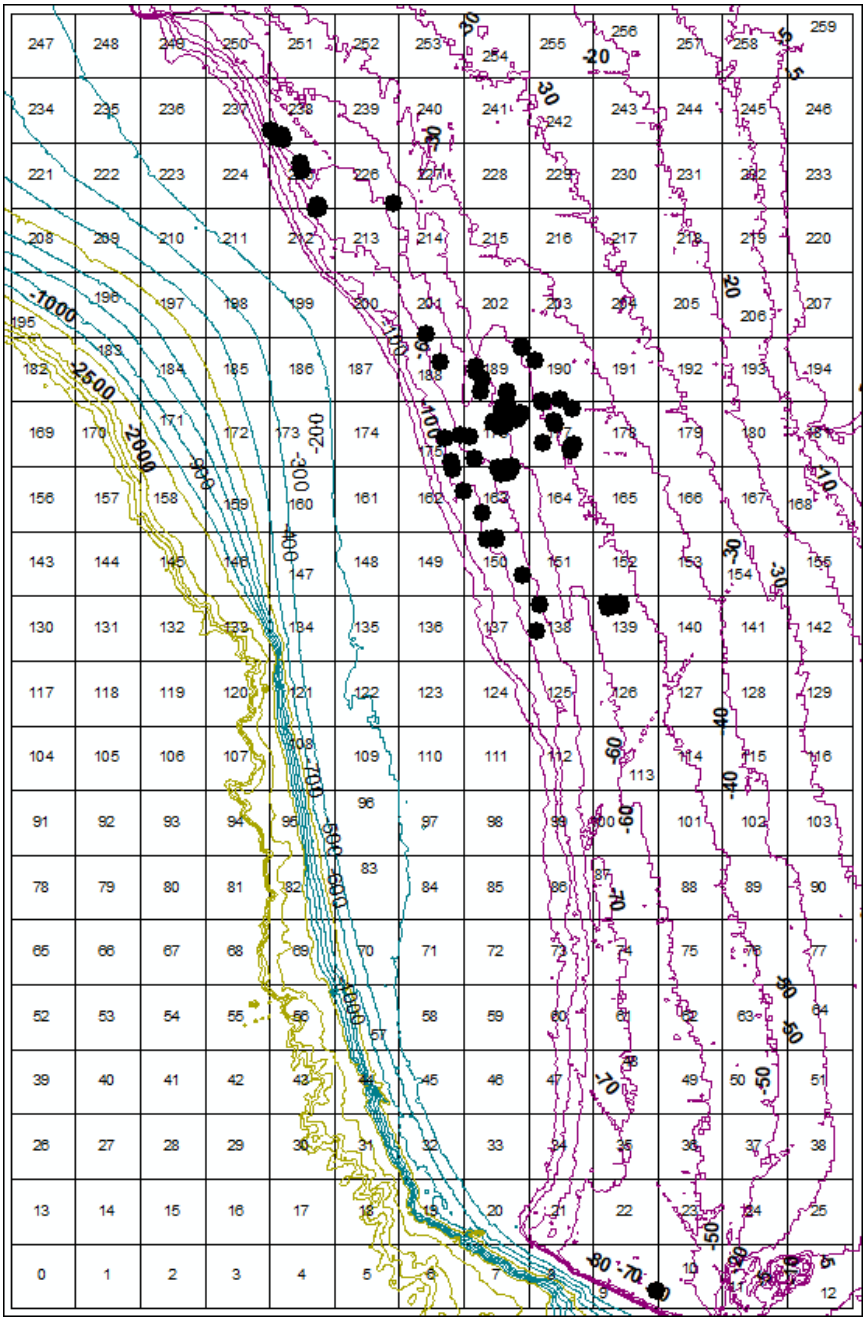

Figure 2. 25 Km x 25 Km grid showing total annotations for grey triggerfish MML EM dataset.

One fish was caught south of 25 degrees. Grey triggerfish were always caught as rare contributions to red grouper (over 60% of the LL catch), and often with sharks (around 4 % of the LL catch). See Figure 3.

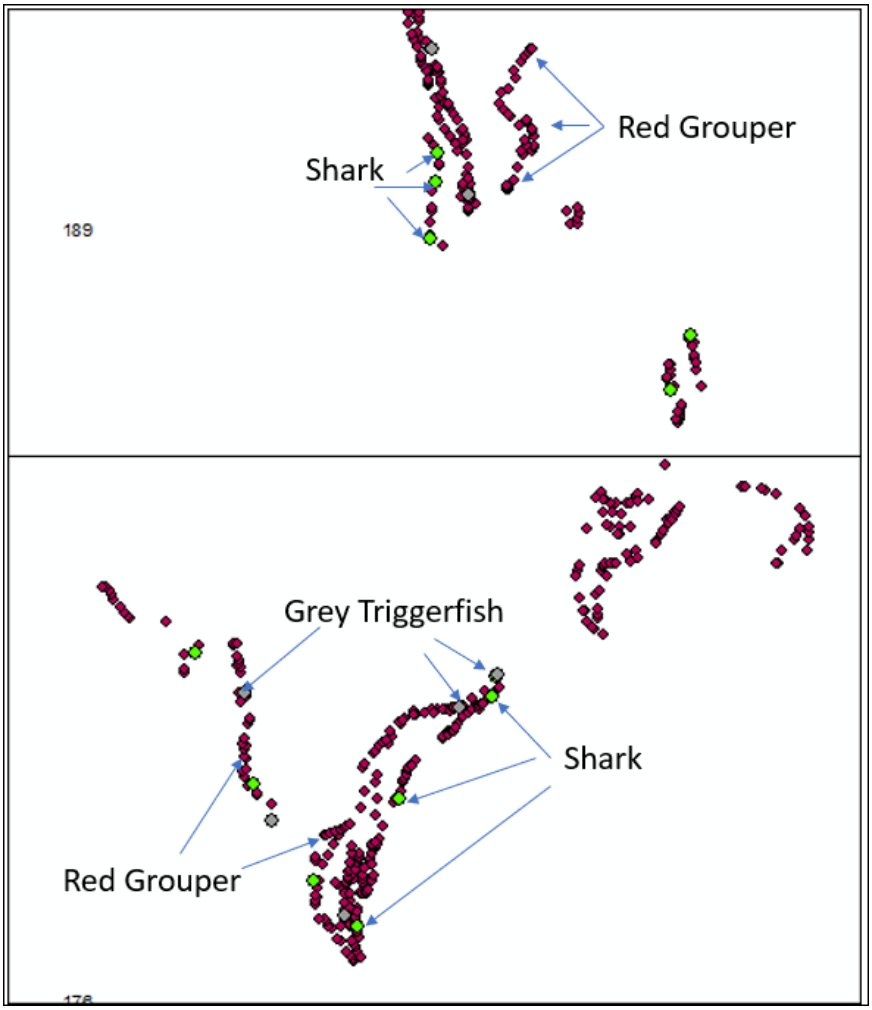

Figure 3. Individual LL sets with just color-coded red grouper (red), grey triggerfish (grey) and shark species (green) markers.

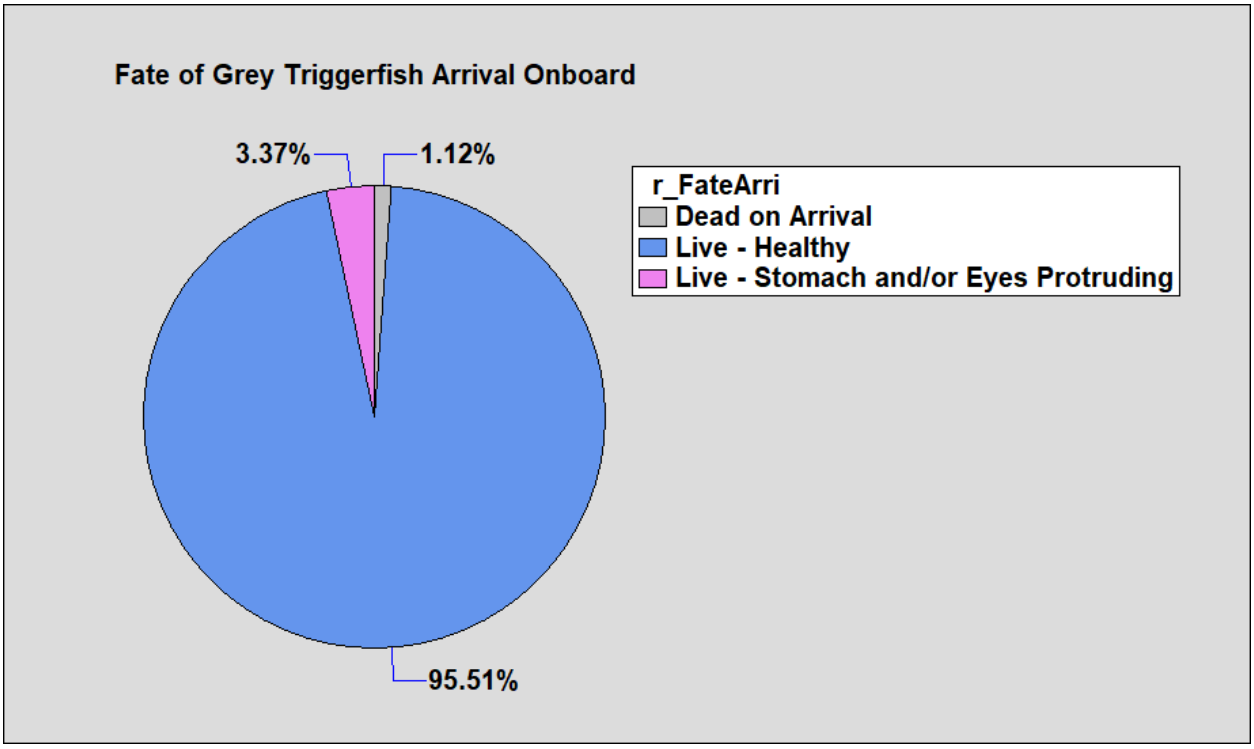

Figure 4. Fate upon arrival onboard vessels for grey triggerfish.

Grey triggerfish almost always arrived on deck alive and healthy and were almost always discarded without having to be vented. Thirty-one fish were caught in 2016, 32 in 2017 and 57 were caught in 2018.

Final disposition of grey triggerfish is reported in figure 5. About 63 % were retained. A little over 2%

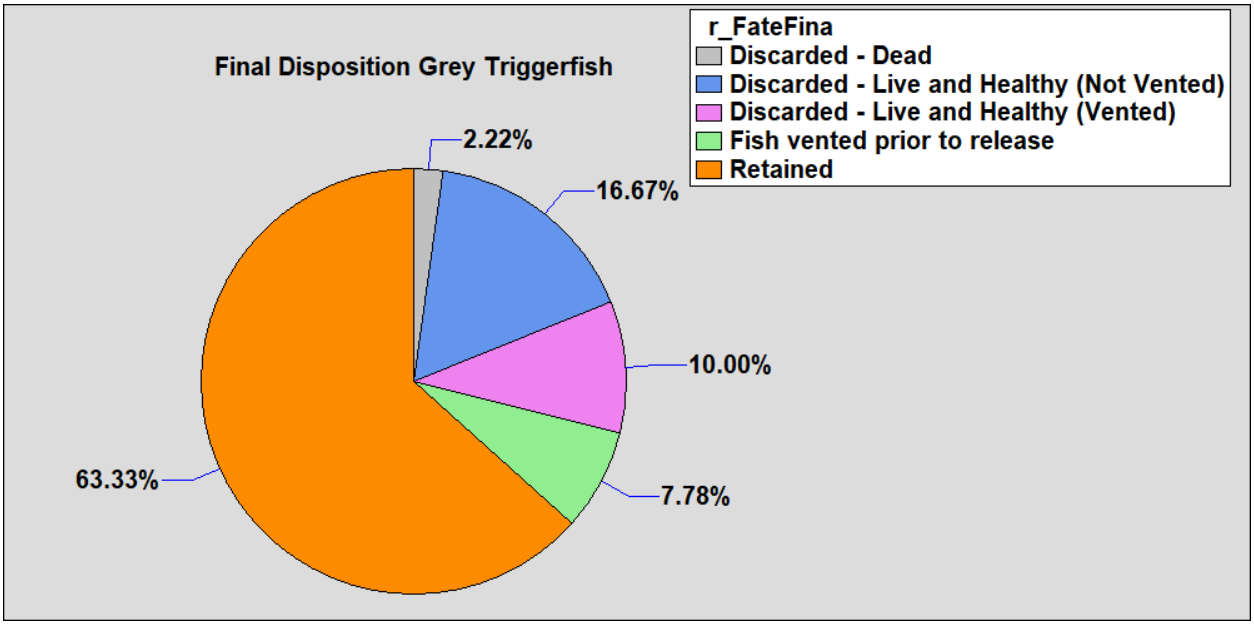

Figure 5. Final disposition of grey triggerfish.

were discarded dead, 10 % were discarded live and healthy but had to be vented, 16.67 % were discarded alive and healthy without having to be vented.

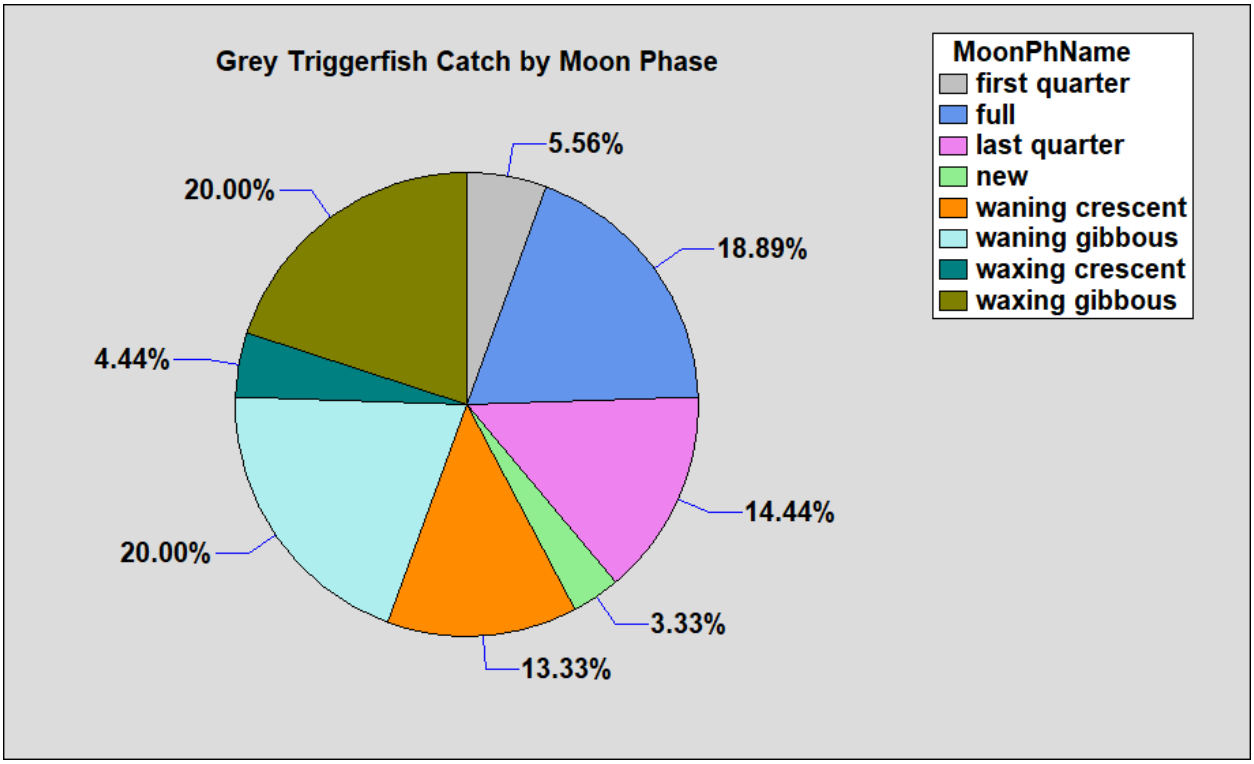

Figure 6. Grey triggerfish catch by lunar cycle.

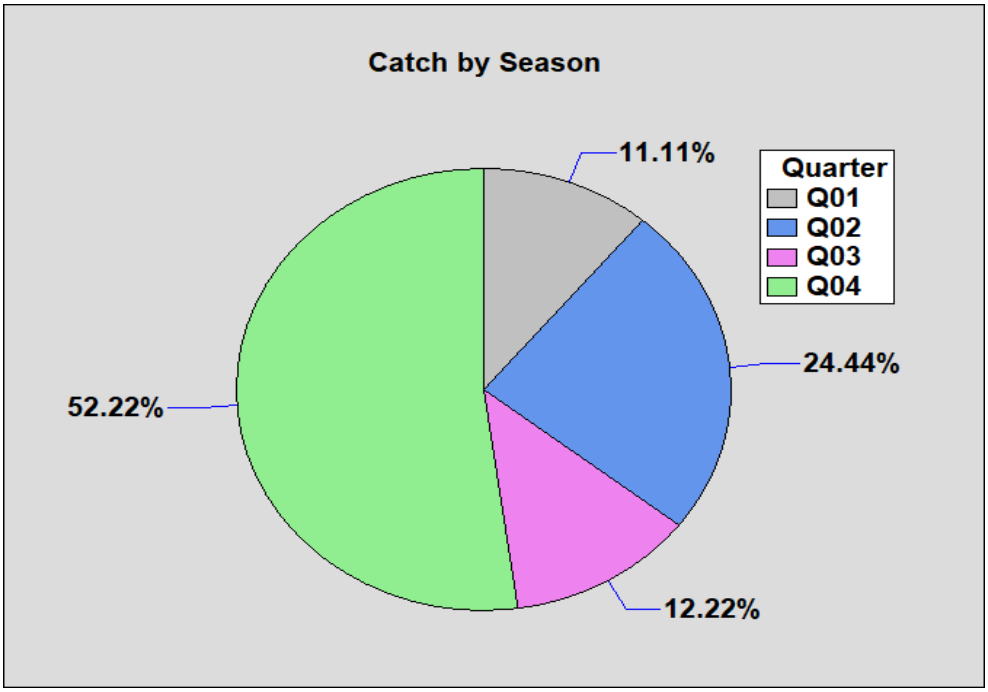

Figure 7. Grey triggerfish catch by season (Quarter).

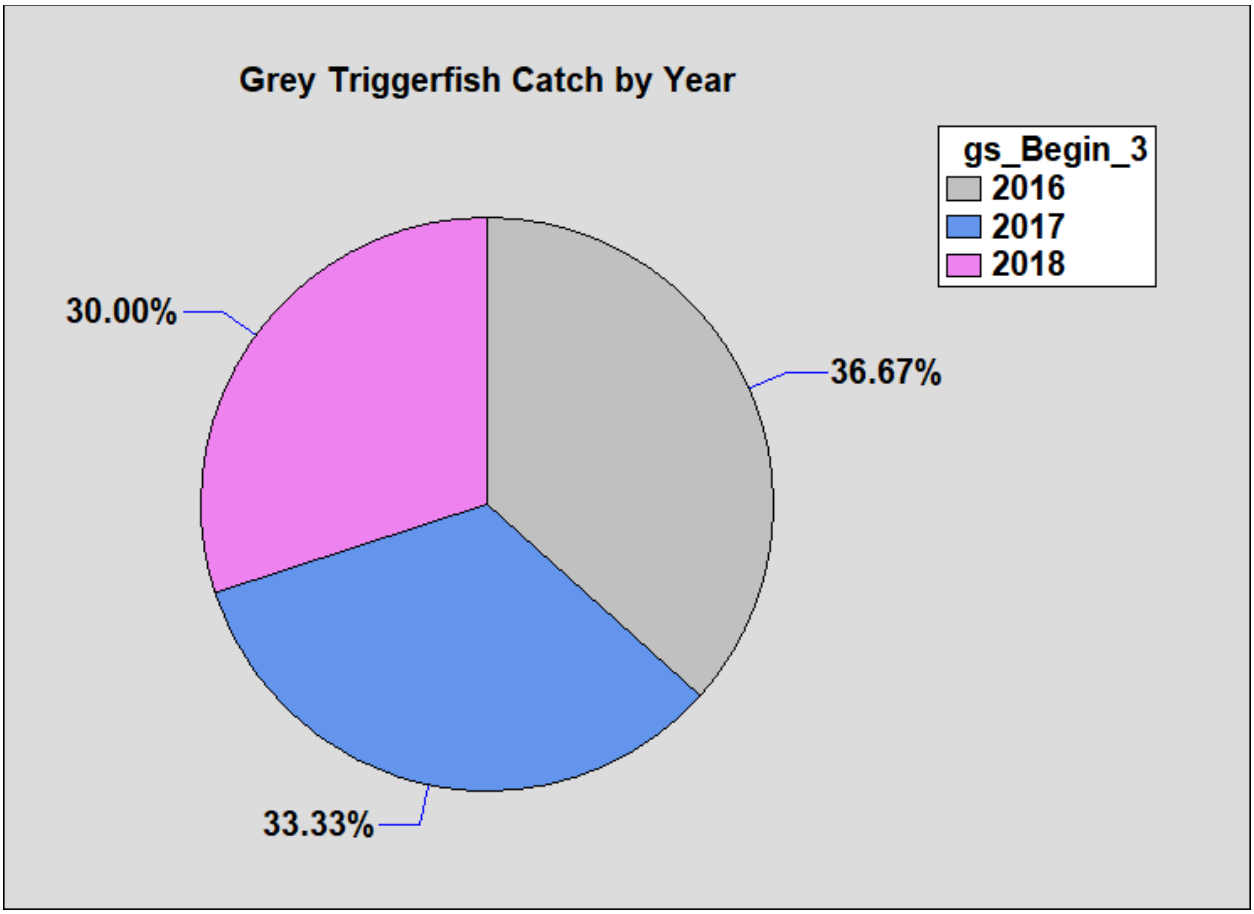

Figure 8. Grey triggerfish catch by year.

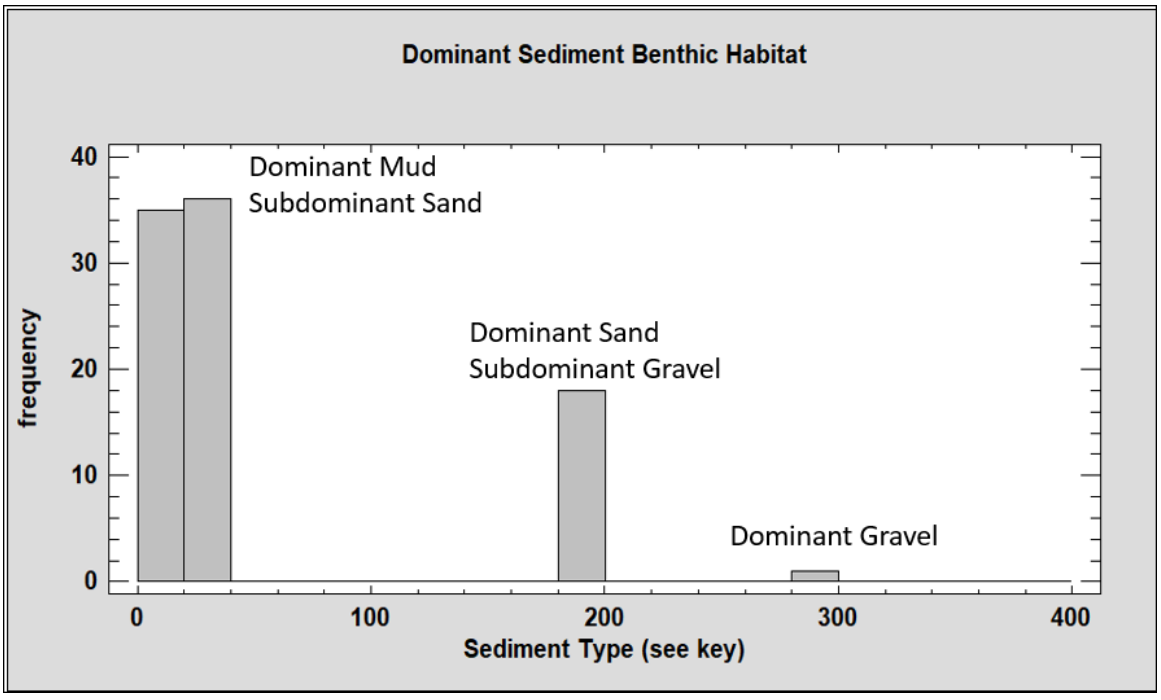

Figure 9. Grey triggerfish location in relation to bottom sub-types.

DB_Seabed thematic layers were used as data source for benthic sediment types. Sand dominates the WFS and much of the hard bottom simply is not mapped. Hard bottom and reef is likely to be found in all of these fishing areas. Proximity analysis indicates that most longline sets in this fishery are somewhat proximal to dominant rock and subdominant rock.