

Submitted by F. Hester (7-18-2010)

Dear Panel Members:

I am posting as requested additional scatter plots, etc. of the catches by sector and length and age and reported depth of capture of red snapper. Additional figures and discussion will be found in AW09v.2 rev.1 including the reason the selectivity issue was not resolved during the Data Workshop. Also in AW09 is a table describing the locations of the fishing areas.

In brief, these data were used at the DW to quantify the distribution of fishing depths for three recreational sectors so as to assign discard mortalities. A determination to see if there was a relation between size (or age) of the catches and depth was not done; cursory examination by eye of the scatter plot of size and age against depth was said to show no relation between depth and the size (age) of the fish. However, a regression line fitted later to the points indicated the size of the fish increases as the depth fished increases. ($N = 7416$, $TL_{mm} = 546 + 0.496 \text{ Feet}$, $P = 0.000$).

To summarize AW09 and this attachment:

1. Size and age increases with depth fished. This is more obvious if young fish are excluded from the tally as the presence of a very large year class tends to obscure the pattern.
2. Head boats are restricted to the distance they can run in the time set for their daily operations. Therefore these boats fish nearer to shore (shallower) than do the commercial and Charter Boat sectors. (Data were too few to draw conclusion on the private sector, which account for the majority of the mortality if one believes MRFSS.)
3. Head boats behave and fish differently from Charter Boats and the decision to pool the two sectors needs to be re-examined.
4. The sizes caught are smallest for head boat, and largest for commercial. Charter boats are intermediate. This suggests there are likely both an availability factor and a gear/methods selectivity factor that needs to be determined for these sectors.
5. Depth fished is largely determined by the topography of the bottom, which is different north of northern Florida. To the south there are a series of structure in the 60 to 100 foot depth and usually within 20 nautical miles of less of the ports. These are favored by the Head Boats and probably the private smaller boats. Deeper and farther off is the big ledge that runs north along the shelf, and deeper structure: "the steeples". Fishing offshore in over 200 feet is highly dependent on weather and current.
6. Captain David Nelson has written a document that covers the fishery. I have asked Kari to post it to the FTP and I urge all of you to read it if you want to understand the factors that determine selectivity and availability in this fishery.
7. The Nelson document and the Hudson time line in the DW Report will be very useful in deciding "selectivity" (vulnerability) in the earlier time periods before depth sounders, loran and fast, bigger boats.

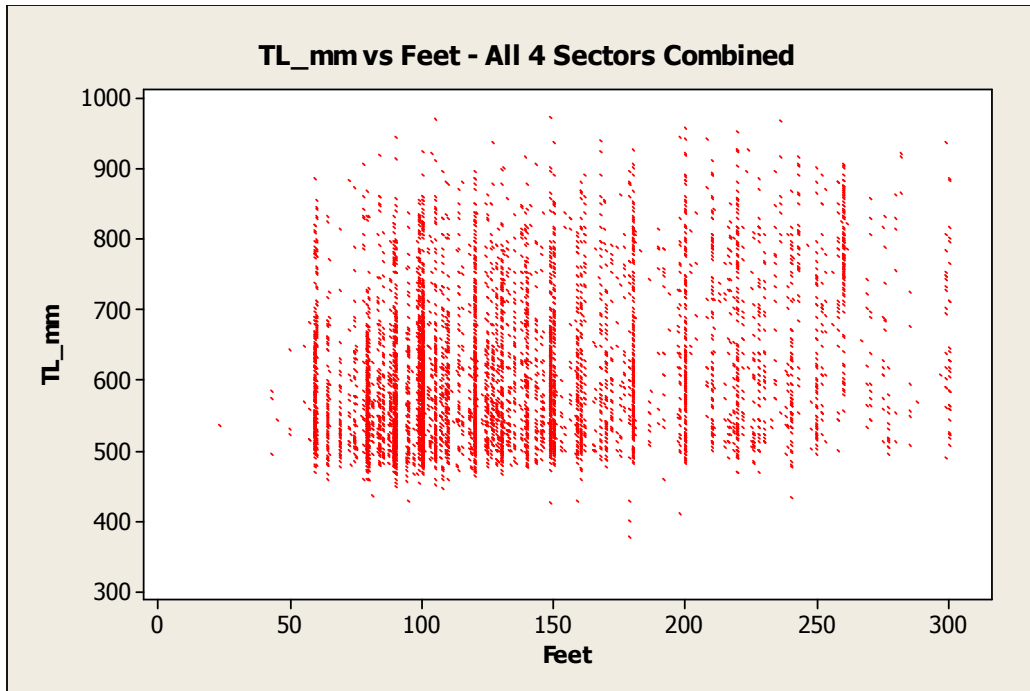


Figure 1 Scatter plot of all data all sectors combined.

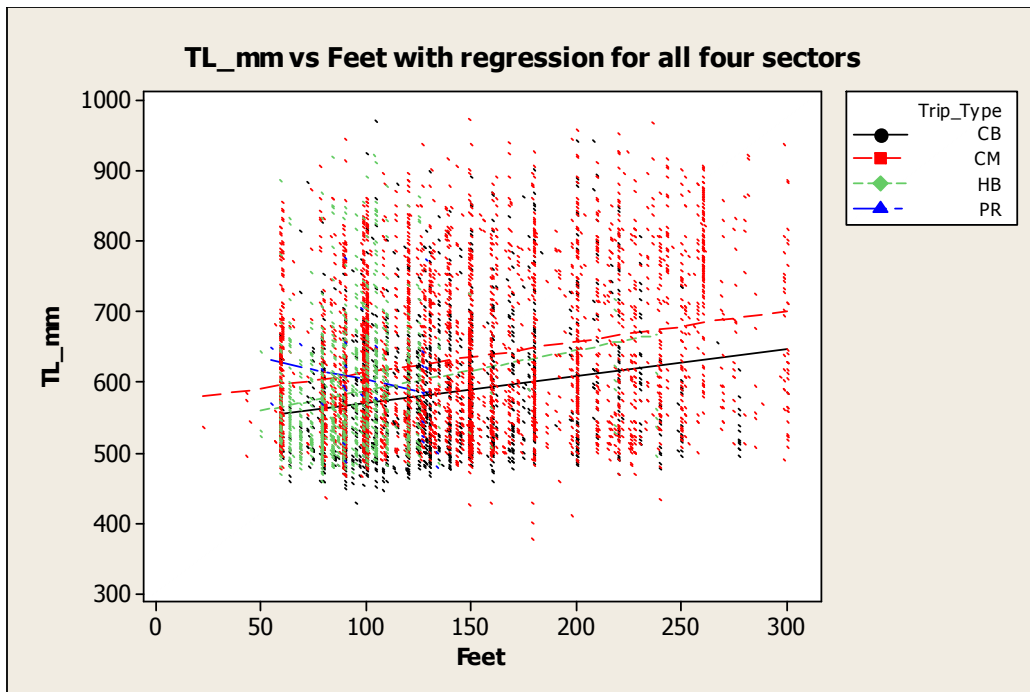


Figure 2. Scatter plot with linear regression lines. Private Boats have only 25 data points.

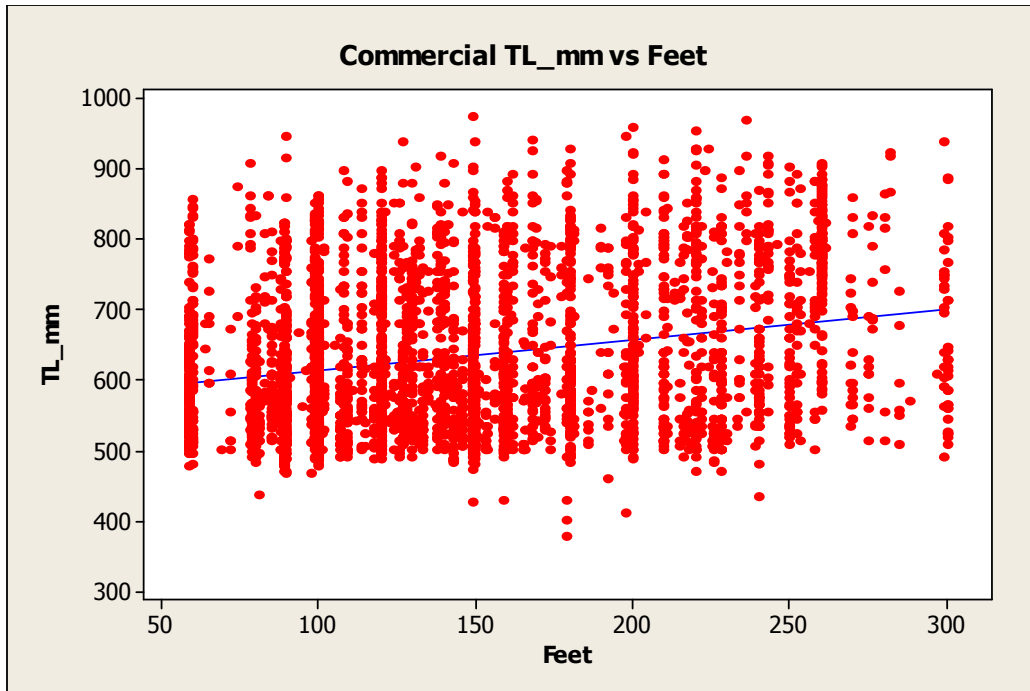


Figure 3. Commercial Sector

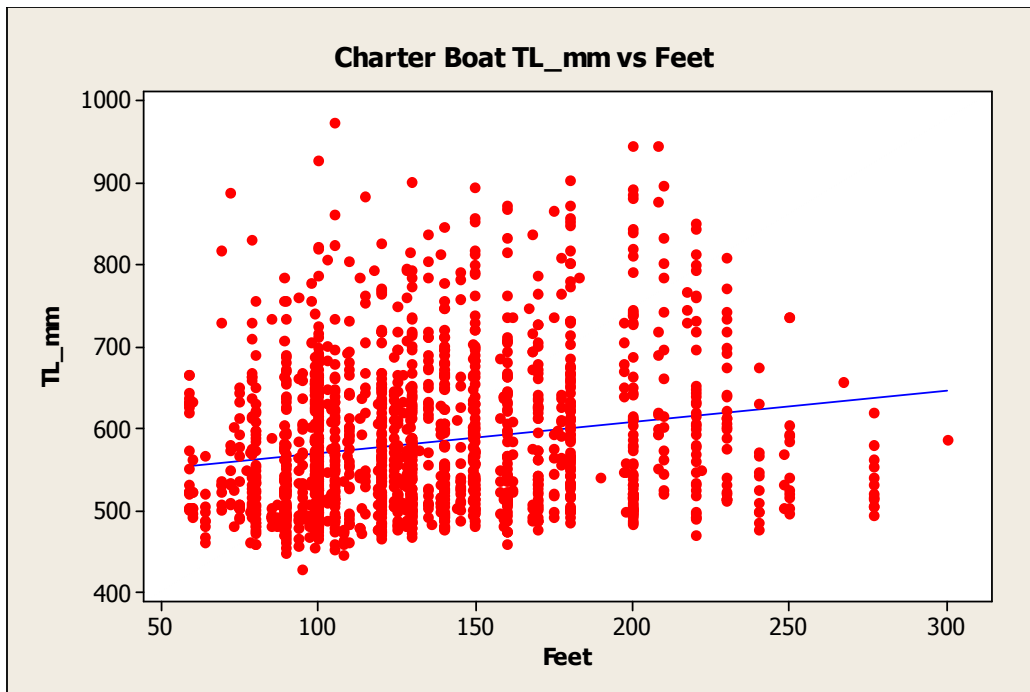


Figure 4. Charter Boat Sector. These boats may troll so depth information may be unreliable

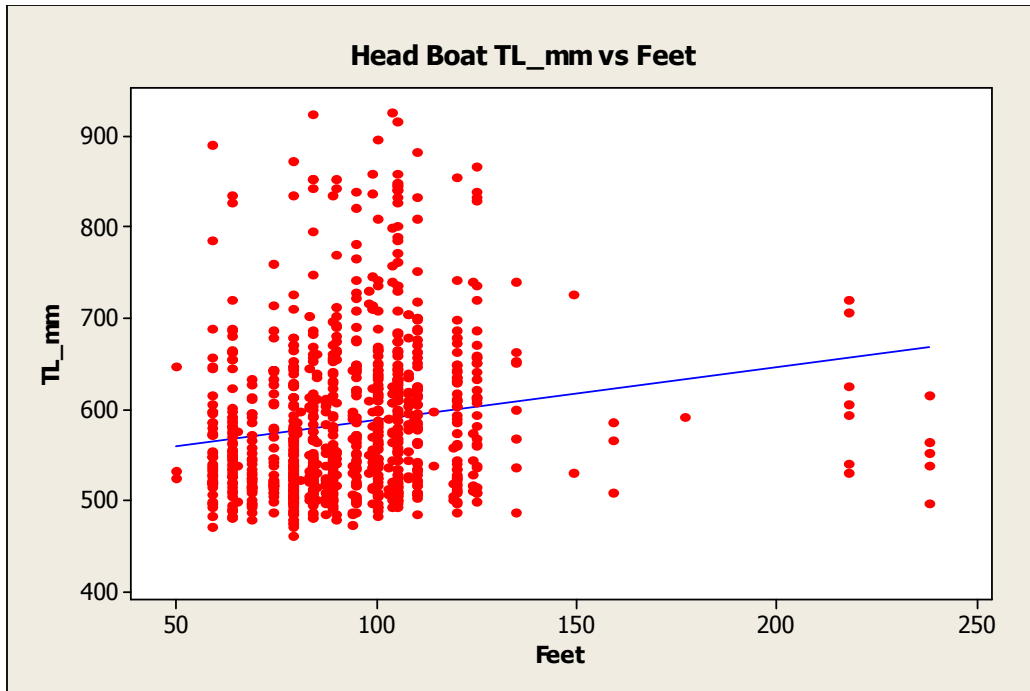


Figure 5. Head Boat Sector – depth fished is controlled by the depth of popular structures and running time to the grounds. Very little fishing deeper than 150 feet. See Table 1. AW09v.2

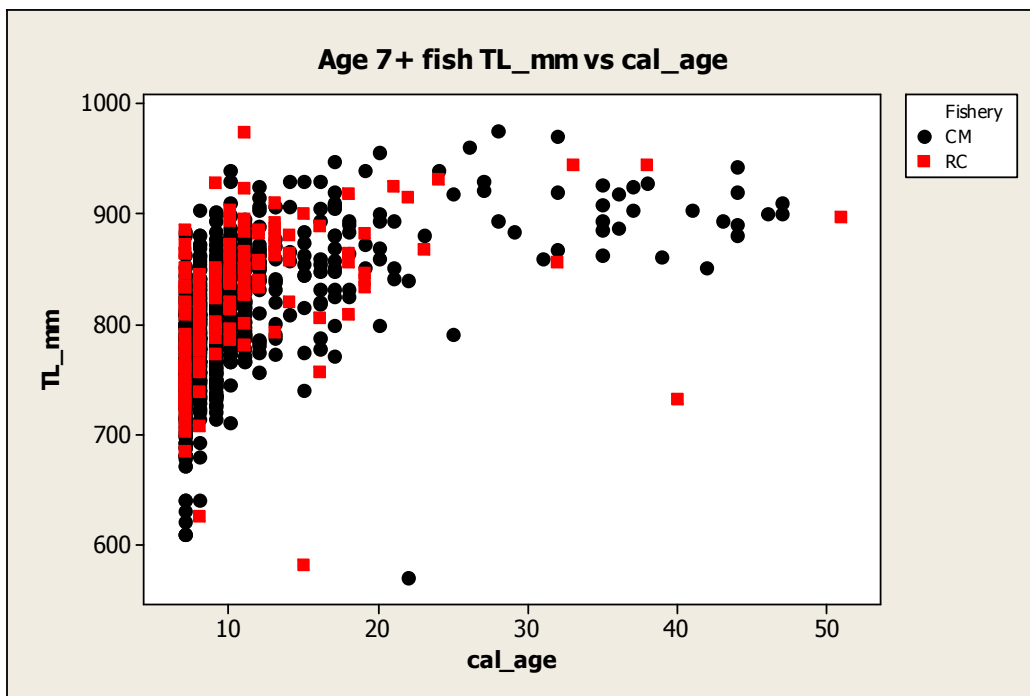


Figure 6. Age-length relation for fish age 7 and older

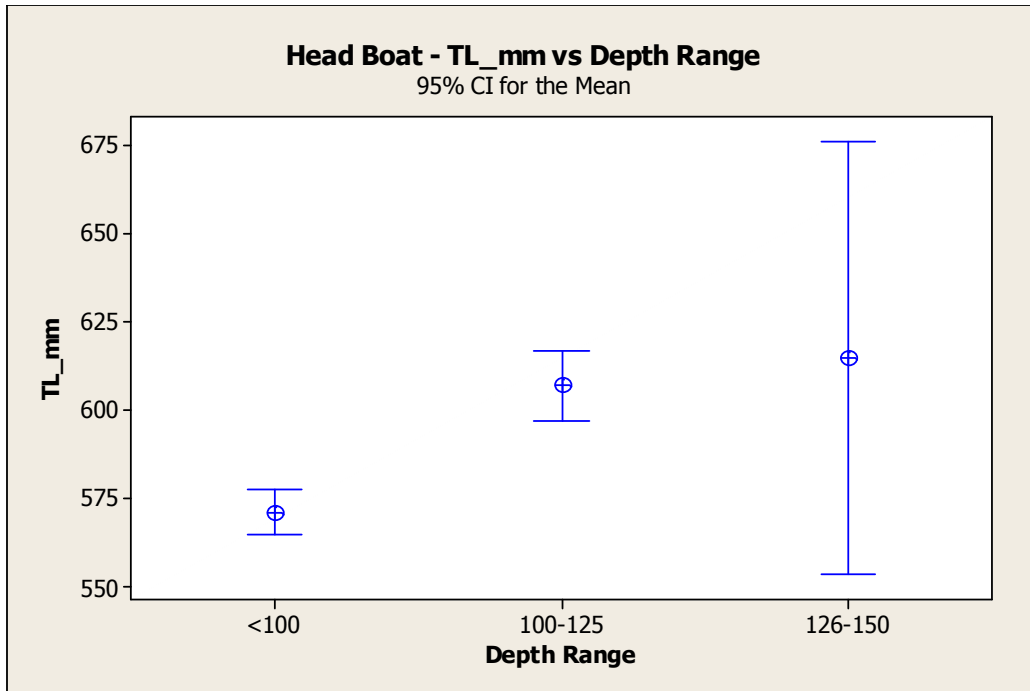


Figure 7. Average size of fish taken by head boats. Note: N = 12 for 126-150 depth range, N > 400 for the two shallower depth ranges. **Catch restricted to age 7 and older.**

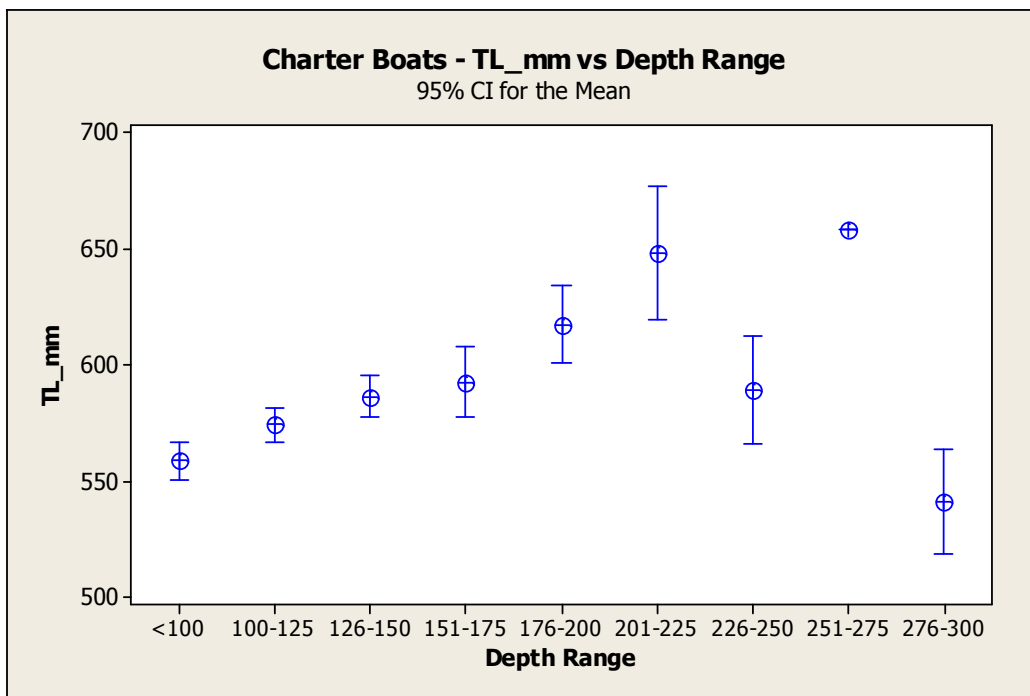


Figure 8. Increase in size with depth for Charter Boats. **Age data not available.** Sample size less than 12 for depth ranges deeper than 200 feet.

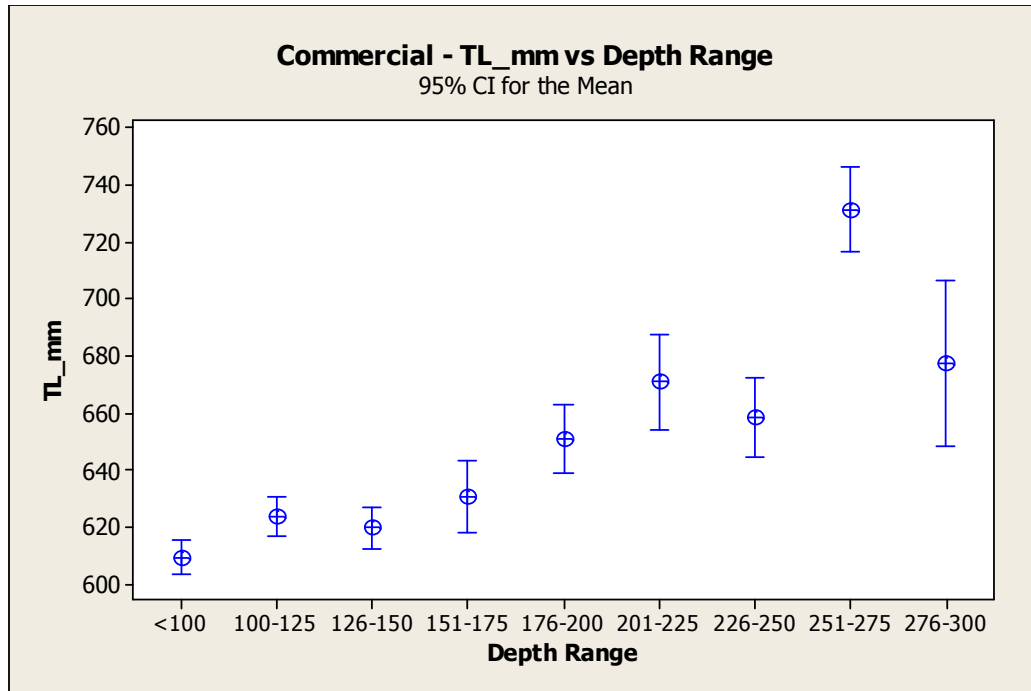


Figure 9. Increase in size with depth for Commercial Boats. **Age data not available.** Note consistently larger fish taken by commercial boats.