**BIOL 5504:** **Quantitative Methods in Ecology and Evolution**

**Spring 2022**

**Gabriel Borba**

**Results**

The fish catch was significantly related to the boat length and the caught river site (Table 1). In general, the fish catch tends to be higher when the boat length is long and from white river sites (Amazonas, Madeira and Purus) (Figure 1). Although fish catch values from Madeira rivers show slight low values compared to Amazonas River values. The fish catch from Negro River showed lower catch values with short boat lengths than the other river sites.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Estimate | SE | z- value | P -value |
| Intercept | 4.56e01 | 1.86e-04 | 24629.3 | <0.001 |
| Boat Length | 1.17e-01 | 1.06e-05 | 11067.5 | <0.001 |
| Madeira River | 3.46e-02 | 1.50e-04 | 231.2 | <0.001 |
| Negro River | -7.21e-01 | 2.62e-04 | -2750.1 | <0.001 |
| Purus River | -1.04e-02 | 1.03e-04 | -100.6 | <0.001 |

**Table 1.** Coefficients values from the generalized linear model (GLM) with a negative binomial distribution develop from the hypothesis that the fish catch is significantly different for boat length and river sites.

**Chart, scatter chart

Description automatically generated**

**Figure 1.** Fish catch and boat length relation over the river sites. Plot derived from the best model. Points shows each fish catch from each fishing trip and lines shows predict values from the same model. Rivers are Amazonas River (amz), Madeira River (mad), Negro River (NEGRO), and Purus River (pur).