**b4 = Sinking Speed**

Nonlinear regression model:

y ~ ((b1 + b2\*x1 + b4\*x3)\*(x2^b3))

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 2.4918 0.58059 4.2919 2.7255e-05

b2 -0.050351 0.020514 -2.4544 0.014942

b3 -0.52286 0.060235 -8.6804 1.2052e-15

b4 -0.09141 0.21783 -0.41964 0.67519

Number of observations: 210, Error degrees of freedom: 206

Root Mean Squared Error: 0.185

R-Squared: 0.35, Adjusted R-Squared 0.341

F-statistic vs. zero model: 115, p-value = 2.94e-51

Nonlinear regression model:

y ~ b1 + b2\*x1 + b3\*x2 + b4\*x3

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 0.42686 0.06136 6.9567 4.5421e-11

b2 -0.0048981 0.0025694 -1.9063 0.058006

b3 -0.00088923 0.00023077 -3.8533 0.00015563

b4 -0.030732 0.031257 -0.98322 0.32665

Number of observations: 210, Error degrees of freedom: 206

Root Mean Squared Error: 0.21

R-Squared: 0.166, Adjusted R-Squared 0.154

F-statistic vs. constant model: 13.6, p-value = 3.75e-08

Nonlinear regression model:

y ~ ((b1 + b2\*x1)\*((x2 + x3)^b3))

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 2.9842 0.66453 4.4907 1.1786e-05

b2 -0.070921 0.017682 -4.011 8.4434e-05

b3 -0.58217 0.064521 -9.023 1.271e-16

Number of observations: 210, Error degrees of freedom: 207

Root Mean Squared Error: 0.184

R-Squared: 0.358, Adjusted R-Squared 0.352

F-statistic vs. zero model: 156, p-value = 6.3e-53

**b4 = Cexport too small to care.**

**b4 = Chl**

Nonlinear regression model:

y ~ ((b1 + b2\*x1 + b4\*x3)\*(x2^b3))

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 0.29634 0.073639 4.0242 0.00010132

b2 -0.0075484 0.0020126 -3.7506 0.00027494

b3 0.081901 0.064536 1.2691 0.20691

b4 0.00028926 0.00030131 0.96002 0.33901

Number of observations: 122, Error degrees of freedom: 118

Root Mean Squared Error: 0.129

R-Squared: 0.479, Adjusted R-Squared 0.466

F-statistic vs. zero model: 141, p-value = 5.19e-44

Nonlinear regression model:

y ~ b1 + b2\*x1 + b3\*x2 + b4\*x3

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 0.40005 0.030867 12.96 1.9769e-24

b2 -0.010931 0.0012816 -8.5287 5.8049e-14

b3 0.00029462 0.00013877 2.123 0.03584

b4 0.00031319 0.00034236 0.91478 0.36217

Number of observations: 122, Error degrees of freedom: 118

Root Mean Squared Error: 0.127

R-Squared: 0.491, Adjusted R-Squared 0.478

F-statistic vs. constant model: 37.9, p-value = 3.05e-17

**b4= SSNO3**

Nonlinear regression model:

y ~ ((b1 + b2\*x1 + b4\*x3)\*(x2^b3))

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 0.24274 0.057588 4.2151 4.9134e-05

b2 -0.0058946 0.0015758 -3.7406 0.00028487

b3 0.12026 0.053211 2.2601 0.025647

b4 0.0016954 0.0014377 1.1793 0.24066

Number of observations: 122, Error degrees of freedom: 118

Root Mean Squared Error: 0.129

R-Squared: 0.48, Adjusted R-Squared 0.467

F-statistic vs. zero model: 142, p-value = 4.58e-44

Nonlinear regression model:

y ~ b1 + b2\*x1 + b3\*x2 + b4\*x3

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 0.37991 0.041184 9.2245 1.3686e-15

b2 -0.010167 0.0016281 -6.2444 6.9396e-09

b3 0.00034442 0.00011785 2.9224 0.0041642

b4 0.0024215 0.002165 1.1184 0.26565

Number of observations: 122, Error degrees of freedom: 118

Root Mean Squared Error: 0.127

R-Squared: 0.493, Adjusted R-Squared 0.48

F-statistic vs. constant model: 38.2, p-value = 2.49e-17

**B4 = Zeu**

Nonlinear regression model:

y ~ ((b1 + b2\*x1 + b4\*x3)\*(x2^b3))

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 0.36508 0.072287 5.0505 1.6229e-06

b2 -0.0062755 0.0012999 -4.8276 4.1811e-06

b3 0.088756 0.043391 2.0455 0.043031

b4 -0.0013975 0.00042284 -3.3049 0.0012585

Number of observations: 122, Error degrees of freedom: 118

Root Mean Squared Error: 0.117

R-Squared: 0.571, Adjusted R-Squared 0.56

F-statistic vs. zero model: 178, p-value = 5.35e-49

Nonlinear regression model:

y ~ b1 + b2\*x1 + b3\*x2 + b4\*x3

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 0.51049 0.031763 16.072 1.6937e-31

b2 -0.0091296 0.0011848 -7.7055 4.489e-12

b3 0.00015472 0.00011869 1.3036 0.19491

b4 -0.0019199 0.00043788 -4.3846 2.5381e-05

Number of observations: 122, Error degrees of freedom: 118

Root Mean Squared Error: 0.118

R-Squared: 0.559, Adjusted R-Squared 0.548

F-statistic vs. constant model: 49.9, p-value = 6.69e-21

**B4 = Prod**

Nonlinear regression model:

y ~ ((b1 + b2\*x1 + b4\*x3)\*(x2^b3))

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 1.1479 0.29085 3.9465 0.0001023

b2 -0.02624 0.0089717 -2.9248 0.0037539

b3 -0.35621 0.089409 -3.9841 8.8182e-05

b4 0.0020471 0.0024883 0.82269 0.41145

Number of observations: 262, Error degrees of freedom: 258

Root Mean Squared Error: 0.203

R-Squared: 0.189, Adjusted R-Squared 0.179

F-statistic vs. zero model: 119, p-value = 2.36e-57

Nonlinear regression model:

y ~ b1 + b2\*x1 + b3\*x2 + b4\*x3

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 0.3349 0.022006 15.218 8.4994e-38

b2 -0.0058255 0.0012788 -4.5554 8.0571e-06

b3 -0.00014786 8.4472e-05 -1.7504 0.081241

b4 -0.00014785 8.4472e-05 -1.7503 0.081246

Number of observations: 262, Error degrees of freedom: 259

Root Mean Squared Error: 0.215

R-Squared: 0.0873, Adjusted R-Squared 0.0803

F-statistic vs. constant model: 12.4, p-value = 7.24e-06

**B4 = SST**

Nonlinear regression model:

y ~ ((b1 + b2\*x1 + b4\*x3)\*(x2^b3))

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

b1 0.99732 0.18395 5.4217 1.352e-07

b2 -0.060243 0.0024877 -24.216 1.7336e-68

b3 -0.29324 0.050551 -5.8008 1.918e-08

b4 0.039619 0.0024877 15.926 2.8049e-40

Number of observations: 262, Error degrees of freedom: 259

Root Mean Squared Error: 0.203

R-Squared: 0.182, Adjusted R-Squared 0.175

F-statistic vs. zero model: 157, p-value = 5.23e-58

Nonlinear regression model:

y ~ b1 + b2\*x1 + b3\*x2 + b4\*x3

Estimated Coefficients:

Estimate SE tStat pValue

\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_

b1 0.3349 0.022006 15.218 8.4994e-38

b2 -0.052913 0.0006394 -82.754 2.6915e-188

b3 -0.00029571 0.00016894 -1.7503 0.081244

b4 0.047087 0.0006394 73.643 1.038e-175

Number of observations: 262, Error degrees of freedom: 259

Root Mean Squared Error: 0.215

R-Squared: 0.0873, Adjusted R-Squared 0.0803

F-statistic vs. constant model: 12.4, p-value = 7.24e-06