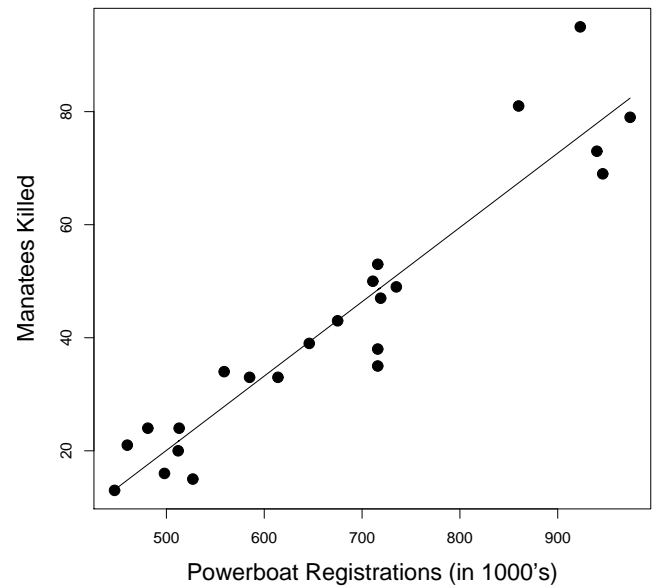


**STAT 216 - Worksheet #6 Lab Section:** \_\_\_\_\_ Names: \_\_\_\_\_

Marine biologists are worried that the growing number of powerboats registered in Florida is threatening the existence of manatees. The data displayed in the scatterplot to the right came from the Florida Fish and Wildlife Conservation Commission and the National Marine Manufacturers Association. Each observation represents a year between 1982 and 2005.



- In one to two complete sentences, describe the association between powerboat registration and the number of manatees killed each year. Be sure to comment on the direction, form, strength, and any unusual features in the association.

- Using the regression output below, report the linear model for this relationship in the context of the problem. This line has been inserted in the scatterplot above.

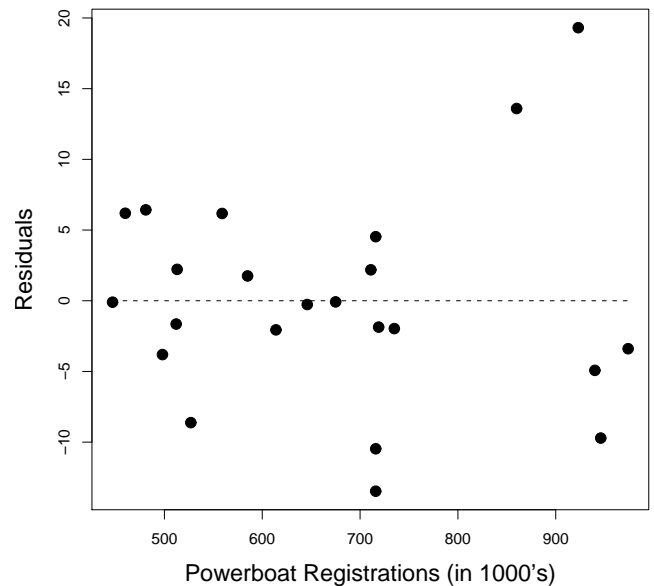
**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-45.671	6.799		-6.717	.000
	Powerboat Reg (1000's)	.131	.010	.946	13.385	.000

a. Dependent Variable: Manatees Killed

- Using the linear model from above, predict the number of manatee deaths for a year with 860 (thousand) power boat registrations.

4. Compute the residual for the year when there were 860 (in 1000's) powerboat registrations and 81 manatees killed. Does this model overpredict or underpredict the number of manatees killed in this year?
  
5. Compute and interpret  $R^2$  in the context of the problem.
  
6. Shown to the right is the corresponding residual plot. Based only on this plot, explain whether or not the linear model seems appropriate for this relationship.



7. Interpret the slope of the linear model you reported in part (b) in the context of the problem.
  
8. If there is a year in Florida when there are 1400 (in 1000's) boats registered, would you feel comfortable predicting the number of manatees that may be killed in that year using this linear model? Explain why or why not in one complete sentence.