Capstone Project 1 Initial Ideas

Model the spawning population of salmon based on observations, commercial landings, and dam passage counts on the Columbia River

The Columbia River in Oregon has the unique feature that we have available three different sources of observational data for salmon migrating to spawn. Historical offshore observation data, commercial landings, and fish passage over dams are all monitored on a species basis for this system. I propose creating a model that would attempt to merge these three datasets in order to predict the spawning population of the system.

This could be used to extrapolate to other salmon fisheries on the west coast of the United States where dam passage data are not available. This could allow fisheries managers who only have commercial landings and offshore observations the ability to better predict the health of the fishery. If managers are able to to more accurately open and close fisheries they can also better maintain the delicate balance of protecting a species as well as protecting the fishermen who rely on the fishery to survive.

Predicting oyster landings in Louisiana based on flood stage of the Mississippi River, hurricane impact, and annual precipitation

Historical oyster landings data from the State of Louisiana as well as flood levels and precipitation could be used to model future landings of oysters. Oyster larvae (spat) are particularly sensitive to extended periods of freshwater. It is possible that large inundations of freshwater in the marshes of coastal Louisiana could harm the settlement and growth of spat. The State spends millions of dollars laying oyster cultch in order to provide enough substrate for spat to settle on. If they were able to better predict landings of adult oysters based on freshwater influence, it may help them better target where and when to apply cultch.

Using the occurrence of different methods of reaching base to predict the runs a player is responsible for creating

Using data from Baseball-Reference.com, attempt to build a model that assigns a run-created-weight to the different methods of reaching base in a baseball game. This could be used to compare the careers of players who played in different eras.