Graphing Fish Population Data

Fish 1 (Chinook) - Considered the most abundant and valued fish species for catching. They migrate along the entire length of the river. Largest of all salmon.

Fish 2 (Coho) - These fish are second to Fish 1 in population and economic value. They migrate only up to the lower middle part of the river system.

Fish 3 (Chum) - Found only near the mouth of the river. Usually caught with nets.

Fish 4 (Sockeye) - Smallest-sized fish in the group. They migrate to the uppermost part of the river. They require lakes for successful spawning and rearing. Do not bite well. Taken mostly with nets.

Fish 5 (Steelhead) - These fish migrate throughout the river system. Habitat requirements are more restrictive than others.

Millions of Pounds of Fish Caught

Years	Fish 1	Fish 2	Fish 3	Fish 4	Fish 5
1870-79	22.7	-	-	-	-
1880-89	30.1	-	-	-	-
1890-99	24.1	3.2	0.8	2.4	3.0
1900-09	25.1	2.1	1.3	0.8	0.7
1910-19	28.1	4.3	3.6	0.9	1.9
1920-29	22.3	5.5	3.1	0.9	2.5
1930-39	17.2	3.2	1.2	0.3	1.9
1940-49	15.4	1.1	1.5	0.2	1.8
1950-59	7.4	0.6	0.2	0.3	1.1
1960-69	4.7	1.6	0.02	0.1	0.6
1970-79	5.9	1.9	0.01	0.2	0.4
1980-89	5.4	1.9	0.01	0.06	0.3
1990-99	0.05	0.019	0.001	0	0.18

Graph levels of each fish species caught from 1870 to 1999. There will be five lines on the graph with each being a different color to represent the different species of fish. You should include a legend on your graph as to which color represents which fish. Also, don't forget to LABEL your graph. Your graph should be set up as landscape (horizontal) view to allow for more room when graphing. The left or y axis will be **"Millions of Pounds of Fish Caught"**. Each line will represent 1 million, up to 30 million. The bottom or x axis will be **"10 year periods"** in increments of 10. ex. 1870-79, 1880-89, etc. through 1990-99. Plot the data on your graph.

<u>Questions using your graph and the fish information only</u>:

1. Do the graphs show any long term trends? If so, what are they?

2. Are there periods where the rates of fish caught change rapidly in a short time? If so, why do you think this is? What could have happened to cause this?

3. What inferences(conclusions) about population abundance of each species can be made from the graphs and fish information?

4. What other factors may be affecting the number of fish caught or population levels?

<u>Questions using all the previous information as well as the historical data</u>:

5. Do any of the inferences you made previously need to be changed in light of the new information? How?

6. Which major events had the most affect on the fish caught?

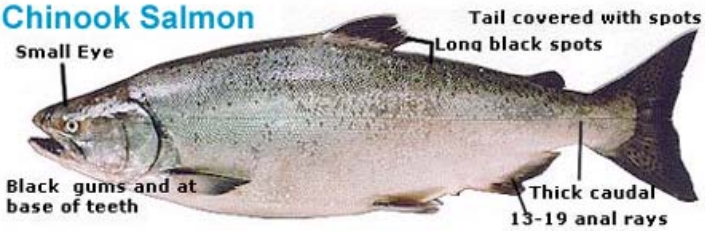
7. Which species of fish was the most affected? How?

8. Choose one species of fish and describe what happened to it throughout history using the graph and historical data.

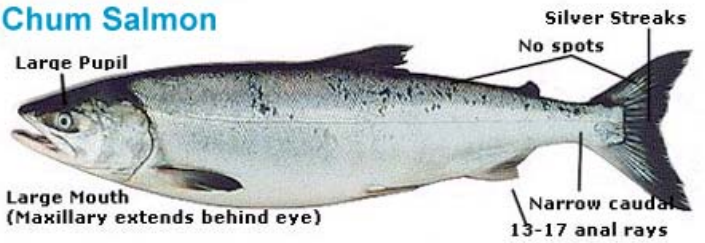
Historical Data

1866	Opening of first fish cannery on the river
1869-83	Canning of Fish 1 jumped from 100,000 cases to 630,000 cases.
1880-1889	43 million pounds of Fish 1 taken from river by commercial fishers
After 1883	Canneries began to use other species of fish (2, 3, 4, 5)
1877-1878	First efforts to regulate fisheries by state. Enforcement was limited but control of amount and type of fish gear helped.
1900-1909	30 million pounds of all fish taken
1915-1920	40-44 million pounds of fish taken as World War I inspired intensive use.
1920	Approximately 1,000 commercial trollers operating in ocean. At least that many boats in the river with gill nets, seines, and traps.
1933-1938	Construction of first dam on lower part of the river.
1935	Only gillnetters allowed on the river. All other commercial fishing techniques banned.
1941	Second dam built in upper river. No fish ladders installed.
1940-1950	Four new dams built on the river between existing dams.
1930-1950's	Extensive logging in lower part of the river system.
1950's	Six dams built on the major tributary of the river. Government launches a massive hatchery program for Fish 1, 2, and 5.
1953	Another dam built on main river.
1957	Another dam built.
1950-1960's	Ocean harvest rather than river harvest of Fish 1 and 2 increases greatly.
1968	Another dam built.
1968-1973	Extreme nitrogen super saturation in river from dam spill of runoff water. Many small fish killed.
1960-1980	Fish hatchery techniques greatly improved in Fish 1, 2, and 5.
1970's	Commercial use of Fish 5 is banned.
1980's	Intensive regulation of ocean fishing on Fish 1 and Fish 2.
1990's	One of the dams is removed.

Chinook Salmon

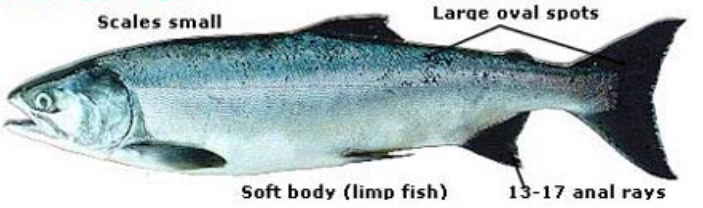


Chum Salmon

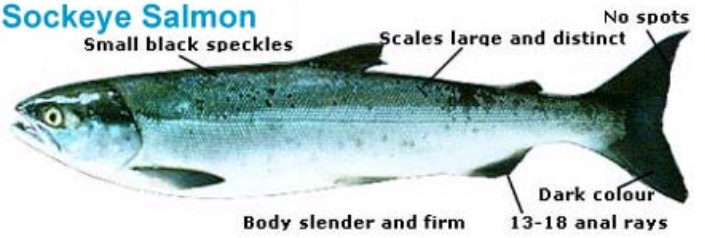


Coho Salmon

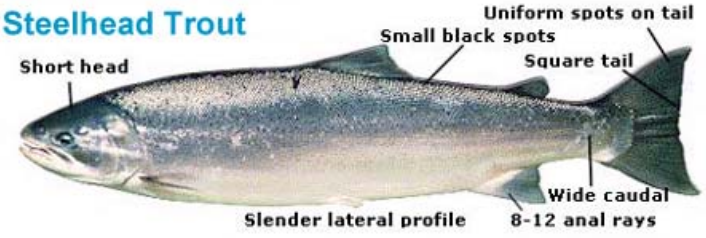
Pink Salmon



Sockeye Salmon



Steelhead Trout



Atlantic Salmon