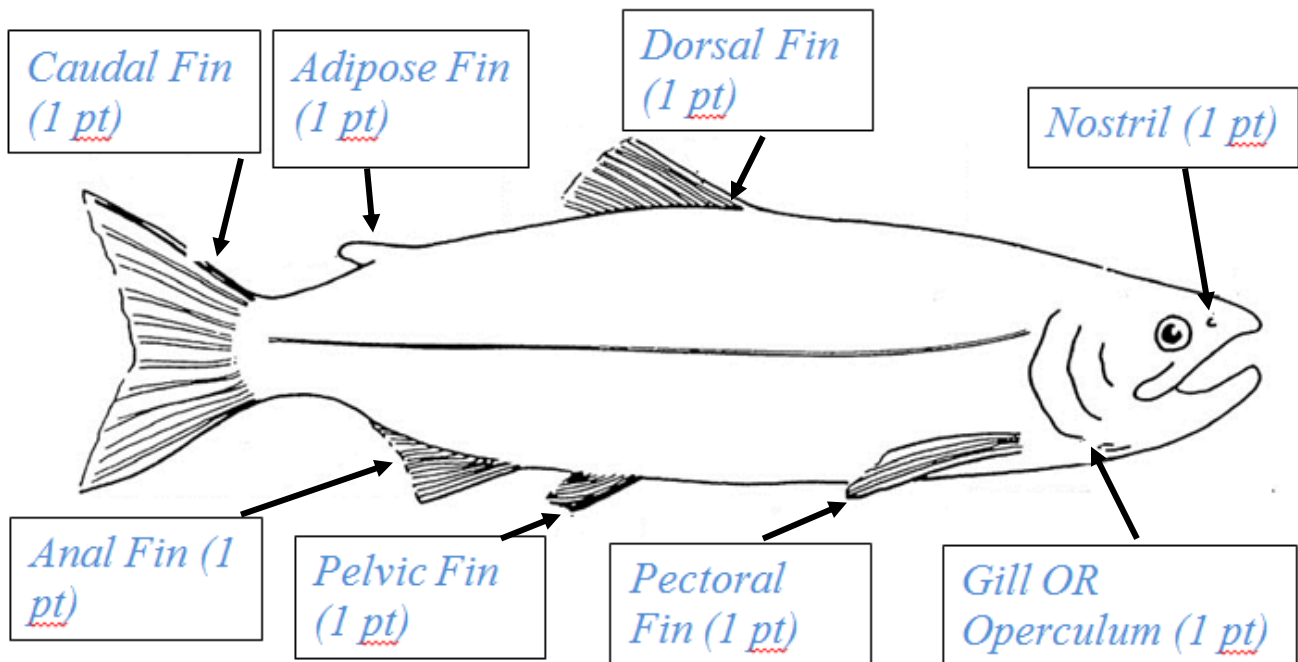**Round: 1A**

1. Salmon (family *Salmonidae*) have a widespread geographic range across the world's oceans. Salmon are classified as anadromous fish. Define "anadromous".

    Anadromous species spend most of their adult lives at sea (1 pt), but spawn in freshwater (1 pt)

2. Label the parts of a salmon indicated on the diagram below.

    Caudal Fin (1 pt)   *Adipose Fin (1 pt)*   *Dorsal Fin (1 pt)*   *Nostril (1 pt)*

    Anal Fin (1 pt)   *Pelvic Fin (1 pt)*   *Pectoral Fin (1 pt)*   *Gill OR Operculum (1 pt)*

3. Salmon populations have decreased substantially in many parts of the world over the past several centuries. List two (2) processes occurring in the marine environment known to have contributed to salmon decline.

    Any two (2) of the following: 2 pts each; 4 pts total.
    - Global warming
    - Overfishing
    - Increased marine mammal populations

4. List two (2) processes that have occurred in coastal watersheds on land which are known to have contributed to the decline in salmon populations.

Any two (2) of the following: 2 pts each; 4 pts total.
- Stream blockage (dams)
- Competition with invasive species
- Deforestation
- Increased runoff
- Introduced diseases (from aquaculture)
- Sedimentation (burying eggs)
- Hypoxia

5. In some parts of the world, attempts have been made to boost salmon populations by producing and raising young fish in hatcheries. List the reason why hatchery fish are considered by many ecologists to be inferior, or even detrimental, to wild fish populations.

These methods run the risk of <u>lowering genetic diversity in the wild population</u> by artificially boosting the survivorship (and hence future fecundity) of certain individuals (2 pts)

Figure Source: Alaska Department of Fish and Game