

3-4. Production Trends and Carrying Capacity of Salmon (Poster-30)

## **Cyclic Climate Changes and Salmon Production in the Bering-Aleutian Region**

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The main part of feeding oceanic area of salmon population originating from Bering Sea basin is located south of the Aleutian archipelago. At the same time the feeding area of Asian chum and pink salmon occupy considerable part of the Bering Sea. The main climatic indices of the North Pacific including the Bering Sea is PDO and ALPI. The PDO index reflects the mean annual ocean surface temperature in the North Pacific and shows 60-65 year fluctuations. Unlike the global temperature dynamics the secular PDO upward trend is absent. The same dynamics (without ascending age-long trend) demonstrate surface temperature in the North Atlantic and in whole Arctic region. Then, ascending age-long temperature trend associated with “global warming” has not been observed in the recent century in the North Pacific, North Atlantic and Arctic Ocean. The total catch of Pacific salmon for the recent century follows the cyclic PDO and ALPI dynamics: maximum in 1920-1940s, depression in 1950-1970s and new ascent from 1970s to maximum of 1990s – early 2000s. The curve of total Pacific salmon catch passed the deflection point in the late 1990s-early 2000s according to PDO dynamics. A simple stochastic model of approximate 60-65 year cyclic climate changes is suggested that makes it possible to predict trends of basic climatic indices and populations of Pacific salmon for several decades ahead. According to modeling it is possible to project a probable downward trend in the total Pacific salmon population for the upcoming 5-10 years.