3-1. Migration and Distribution of Salmon (Oral-2)

Distribution and CPUE Trends of Pacific Salmon, Especially in Sockeye Salmon in the Bering Sea and Adjacent Waters

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Many populations of three abundant Pacific Salmons including pink, chum and sockeye use Bering Sea as their feeding migration waters. Two distinct patterns are apparent in CPUE fluctuation trends of five major north Pacific salmon species in the Bering Sea. The CPUE of pink and chinook salmon increased after 1988 and has remained at this level to present. Whereas, the CPUE of sockeye and chum salmon was low prior to 1977, peaked in 1980, declined until 1989, and then increased until the present. The CPUE trends of sockeye and chum salmon seem to coincide with fluctuations in Bering Sea, sea surface temperature (SST) where higher densities of sockeye and chum salmon in the Bering Sea occur during warm periods and lower densities occur during cool periods especially in sockeye salmon. These some rise or down of the CPUE seem to coincide the hypothesized regime shits at 1976/1977 or 1988/1989. The previous study showed positive correlation between sockeye CPUE and SST in the Bering Sea, but recent analysis indicates that seasonal SST rise at north western portion of the Gulf of Alaska and adjacent waters of Aleutian chain is more related to Sockeye CPUE in the central Bering Sea. Tag recoveries, genetic stock identification, parasite tags and scale analysis showed that most abundant sockeye salmon stock in central and western North Pacific in spring is the Bristol Bay sockeye. The rise of SST around the Alaska Peninsula and Aleutian chain should stimulate the immature Bristol sockeye salmon to penetrate the central Bering Sea in summer. Is the central Bering Sea suitable or not to them?