

Eastern Bering Sea (BASIS) Coastal Research on Juvenile Salmon - Auke Bay Laboratories

Pacific salmon (*Oncorhynchus* spp.) runs in rivers that flow into the eastern Bering Sea have been inconsistent and at times very weak. Low returns of chinook (*O. tshawytscha*) and chum (*O. keta*) salmon to the Yukon River, Kuskokwim River, and Norton Sound areas of Alaska prompted the state of Alaska to restrict commercial and subsistence fisheries during 2000 and declare the region a fisheries disaster area. Weak salmon returns to these river systems follow several years of low sockeye (*O. nerka*) salmon returns to Bristol Bay, which was declared a fisheries disaster region during 1998 by both the State of Alaska and the U.S. Department of Commerce. Causes of the poor salmon returns to these river systems are not known however, the regional-scale decline of these stocks indicates that the marine environment may play a critical role. Ocean conditions, particularly in the first few months after the salmon leave fresh water, are known to significantly affect salmon survival (Holtby et al. 1990; Friedland et al. 1996; Beamish and Mahnken 2001). Mechanisms affecting marine survival of the eastern Bering Sea salmon stocks are unknown, principally due to the lack of marine life history information on western Alaska salmon. To improve understanding of the marine life-history stage of salmon in the Bering Sea, the North Pacific Anadromous Fish Commission (NPAFC) began an internationally coordinated research program on salmon in the Bering Sea called the Bering-Aleutian Salmon International Survey (BASIS) (NPAFC 2001). As part of BASIS, scientists from the National Marine Fisheries Service (NMFS), Ocean Carrying Capacity (OCC) program conducted a fall survey on the eastern Bering Sea shelf to provide key ecological data for eastern Bering Sea salmon stocks during their juvenile life-history stage. The goal of the OCC/BASIS salmon research cruise was to understand mechanisms underlying the effects of environment on distribution, migration, and growth of juvenile salmon on the eastern Bering Sea shelf. Primary objectives of BASIS include: 1) to determine the extent of offshore migrations of juvenile salmon from rivers draining into the eastern Bering Sea, 2) to describe the physical environment of the eastern and northeastern Bering Sea shelf occupied by juvenile salmon, and 3) to collect biological information on other ecologically important species. Summaries of previous Bering Sea juvenile salmon research cruises can be found in Farley et al. (1999, 2000, 2001, 2002, 2004, 2005).