

3-1. Migration and Distribution of Salmon (Keynote-1)

## **Hot and Cold Running Salmon: Lessons from BASIS on Stock-Specific Migration and Distribution Response to Climate Change**

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Past research on ocean distribution of Pacific salmon established that regional stock groups of salmon migrate to specific ocean foraging areas. Is there a relation between these regional stock-specific ocean migration and distribution patterns and salmon production trends in Asia and North America? Are regional stock-specific migratory patterns influenced by climate change? Can we use this information to better understand the mechanisms of environmental and density-dependent effects on salmon carrying capacity in the ocean, as well as to improve our ability to forecast abundance trends in international and domestic salmon stocks? The potential to expand our knowledge to address these questions is limited only by the scope of our ocean field-research operations and completion of international baselines for stock identification all salmon species. BASIS was designed to provide the first synoptic seasonal information on migration and distribution patterns of regional stock groups of salmon throughout the Bering Sea. During 2002-2006, field operations coordinated by NPAFC's BASIS Working Group took place primarily in summer and fall. Stock identification methods included genetic techniques, scale pattern analysis, otolith marks, and tags. We briefly review and synthesize results of BASIS research on stock-specific distribution and migration patterns of salmon in the Bering Sea. We further discuss new models and hypotheses of climate-driven changes in migration and distribution patterns of regional stocks of salmon in the Bering Sea.