

3-2. Food Production and Salmon Growth (Oral-19)

## **The Relations of Food Availability and Oceanic Region to Growth of Coho Salmon: Perspectives from the Northern California Current**

Brian Beckman\*<sup>1</sup>, Cheryl Morgan<sup>2</sup>, and Marc Trudel<sup>3</sup>

<sup>1</sup> *NWFSC, NOAA Fisheries, Seattle, WA, USA; E-mail, Brian.Beckman@noaa.gov*

<sup>2</sup> *CIMRS, Oregon State University, Corvallis, OR, USA*

<sup>3</sup> *PBS, Canadian Department of Fisheries and Oceans, Nanaimo, BC, Canada*

Levels of the hormone insulin-like growth factor I (IGF-I) were measured to index growth of post-smolt coho salmon in a series of research cruises off the Oregon-Washington coast. Significant differences in mean June IGF-I level have been found between years, suggesting that ocean growth differs among these same years (2000 – 2007). A positive relation was found between plasma IGF-I levels and an index of relative food abundance, with increasing food related to higher IGF-I levels. A positive relation was subsequently found between mean June IGF-I level and survival of adult Oregon Production Index coho the following year. This suggests that inter-annual variation in ocean conditions results in altered growth rate of juvenile coho salmon and that these growth differences affect subsequent adult survival. In 2007 an extended survey, from Central Oregon to Southern Alaska (44.6 - 56.3°N), was accomplished. Data from these cruises show that juvenile coho salmon growth was higher in the Alaska Coastal Current and Transition domains than in the California Current System, suggesting that ocean conditions were more favorable for growth at these northern latitudes. Together, these data demonstrate both inter- and intra-annual variation in juvenile salmon growth occurs, that at least some of this variation can be linked to varying food supply and that variations in growth can be linked to subsequent performance (survival). Acknowledgements: NOAA Fisheries, CDFO, Bonneville Power and the Pacific Salmon Commission supported this work.