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Theme: Modelling

Session: WeC4 - Marine Protected Areas (MPA) & spatial modelling

Title: **Estimating the Benefits of Dynamic Hotspot Closures: Salmon Savings Areas in the Bering Sea Pollock Fishery**

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Abstract: In the 1990s the North Pacific Fisheries Management Council and the National Marine Fisheries Service established regulations to limit the amount of Chinook and chum salmon taken as bycatch in Bering Sea trawl fisheries. The Bering Sea pollock fishery has in recent years (2002-2005) caught a significant number of sockeye and chum salmon as bycatch which has led to the seasonal imposition of the closure of the salmon savings areas (SSA), which has closed an important part of the pollock fishery. During these closures a limited number of special permit holders are allowed to continue to fish in the SSA and salmon bycatch rates have actually been lower inside of the SSA. For this reason, the North Pacific Fisheries Management Council has agreed to implement a program with voluntary rolling hotspot (VRHS) closures, in which closures will be adjusted dynamically to reduce bycatch. From the pollock industry's perspective, the VRHS will also allow the pollock fleet to be active on its preferred fishing grounds.

This paper builds upon previous work (Haynie and Layton 2004, Haynie 2005) that develops the Expected Profit Model (EPM). We estimate coefficients on bycatch avoidance as well as the impact of changing sea temperature. We develop welfare estimates of the SSA closures for 2002-2005 and then estimate the benefits from implementing the VRHS system.