

Title: **Fishing Effort Response to A Spatial Closure: Rockfish Conservation Area in California**

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Abstract: This paper analyzes the effects of spatial closures on the multi-species groundfish trawl fishery in northern and central California. The analysis differentiates between changes in total effort and in the spatial distribution of effort before and after implementation of the closures. We use logbook data on the location and duration of trawls. Our comparative analysis divides vessels into groups based on fishing patterns prior to the closure. Additionally, we test for differences in total effort and in the likelihood of exiting the fishery between groups to assess whether implementation of the closures influenced total effort in the fishery. We also examine the proportion of effort in various fishing locations before and after the closures to determine which locations, if any, experienced increased fishing effort. Our results contribute to an understanding of the relative magnitudes of two important effects of marine reserves: reduction in total fishing effort and redistribution of fishing effort. The first effect, change in total effort, has implications for the viability of coastal fishing communities and raises questions about whether other fishery management options are more appropriate for reducing total effort. The second effect, effort redistribution, affects the ability of marine reserves to achieve ecological and stock rebuilding objectives. In the case of the California groundfish trawl fishery, effort redistribution may also shift fishing pressure to alternative target species that are present in the remaining open areas.