

Title: **The Design of Hybrid individual incentive Mechanisms for Bycatch Reduction**

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Abstract: After salmon bycatch levels reached record levels in 2006 and 2007 in the Bering Sea pollock fishery, the North Pacific Fishery Management Council (NPFMC) began consideration of a hard cap that would close the fishery if it were reached. The NPFMC asked for input from economists at the National Marine Fisheries Service (NMFS) on individual bycatch accountability mechanisms, including individual salmon bycatch quotas and fees. Because bycatch and salmon abundance are partially correlated, the optimal method to reduce bycatch will both prevent an excessive level of bycatch and protect salmon at periods of lower bycatch encounters that are present at times when stocks are weak and protection most important. Because NMFS was legally unable to impose fees for the secondary purpose of protecting salmon at low abundances, the NPFMC presented industry with a choice: a fixed hard cap of 47,591 salmon or a hard-cap of 68,382 salmon with an industry-operated individual-incentive program that would provide at least as much protection as the hard cap. Here we feature characteristics of programs that will protect salmon during high and low encounter periods and the specifics of programs proposed by industry. We discuss the efficiency and effectiveness of these programs and discuss the importance of having individual bycatch quota under a hard cap which could otherwise erode benefits in the rationalized fishery. The NPFMC passed a plan amendment that will go in place in 2011 that will allow for the implementation of a hybrid incentive system, potentially protecting salmon at all abundance levels.