

North Pacific Research Board: Format for Semiannual Progress Report

Project #: R711

Title: Quantification of unobserved injury and mortality of Bering Sea crabs due to encounters with trawls on the seafloor

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Contract Period and Amount of Funding: June 1, 2007 – June 30, 2009

Report Period: January 1 to June 30, 2008

Report Date: July 15, 2008

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Project Summary: The potential for unobserved mortality of crabs encountering bottom trawls, but not brought aboard the fishing vessel, has long influenced the management of Bering Sea groundfish fisheries. Our research will address the lack of data on the mortality rates of such crabs for at least two principal commercial crab species of the Bering Sea, red king crab and either Tanner crab or snow crab. We will apply and improve existing methods for collecting crabs immediately after trawl encounters (Rose 1999). Assessments of reflex impairment will be used to more efficiently estimate delayed mortality rates with reduced requirements for long-term holding (Davis 2006). This proposal leverages pilot funding from the NMFS cooperative research program. Pilot fieldwork in early Summer 2007 will establish recapture net designs and handling, as well as procedures for holding crabs onboard. Reflex and reflex impairment observations of captive animals at the Kodiak NMFS laboratory will provide information needed for field assessments of crab condition. The principal fieldwork in Summer 2008 will combine these developments to assess the mortality probabilities of crabs that have passed the sweeps, wings and central footrope of a commercial groundfish trawl as well as control animals collected identically without trawl encounters. Mortality estimates will be derived by combining condition assessments based on reflex impairments with the delayed mortality rates of retained animals.

Progress Summary: In the last six months, we have made the preparations for the primary fieldwork session of this project, which will occur July 30 – August 15 aboard the chartered fishing vessel *Pacific Explorer*. Supplies have been procured, travel arrangements made, permits acquired and scientific activities planned. We have also prepared and presented the results of our pilot work for publication. Fishery Bulletin has accepted that paper and it will be published soon.