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## A DYNAMIC MODEL TO EVALUATE THE EFFECT OF REGULATION ON THE HAWAIIAN PELAGIC FISHERY

### PROGRESS REPORT FOR July 1999

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The project has developed an economic model for a multi-species fishery that incorporates the spatial distribution of effort and fish stocks. Catchability coefficients and initial stocks are estimated from catch and effort data for each specific location. Vessels are allocated over space and time to locations of maximum profit which decline with harvest because of stock externalities. A supply function for labor allocation in the fishery is estimated. The simulated model is applied to the Hawaiian longline fishery. The economic impacts of regulatory policies such as reduction of inshore gear conflict and conservation of offshore turtle populations are currently being examined. The publications from the project are:

Chakravorty, Ujjayant, and Keiichi Nemoto, "A spatial-dynamic model for the allocation of fishing effort with application to the Hawaii longline fishery," presented in *Tuna Conference*, Lake Arrowhead, California, 24-27 May 1999, 38 pp.

Chakravorty, Ujjayant, Keiichi Nemoto and KinPing Tse, "A spatial-dynamic model for the allocation of fishing effort with application to the Hawaii longline fishery," in review, *Journal of Environmental Economics and Management*, 1998, 38 pp.

Chakravorty, Ujjayant and John Sibert, ed., *Ocean-Scale Management of Pelagic Fisheries: Economic and Regulatory Issues*, Proceeding of an International Workshop organized by Pelagic Fisheries Research Program (PFRP), Joint Institute for Marine and Atmospheric Research (JIMAR), University of Hawaii at Manoa, Honolulu, Hawaii, 12-13 November 1997, 102 pp.

Chakravorty, Ujjayant, Keiichi Nemoto, KinPing Tse, and John Yanagida, "A spatial-dynamic model for the allocation of fishing effort: application to the Hawaii longline fishery," *Ocean-Scale Management of Pelagic Fisheries: Economic and Regulatory Issues*, Proceeding of an International Workshop organized by PFRP, JIMAR, University of Hawaii at Manoa, Honolulu, Hawaii, 12-13 November, 1997, 102 pp.