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THE IMPACT OF VOLUNTARY CATCH AND RELEASE OF LEGAL-SIZED FISH ON RECREATIONAL FISHERIES[1]

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Abstract

Catching and releasing fish, even though they may be of legal size to keep under prevailing fishing laws, is a widespread practice among recreational fishermen. However, fisheries managers usually concentrate on estimating fishing effort and number of fish harvested when assessing a fishery, and simply assume that the impact of this voluntary release of legal fish is negligible. The purpose of this study was to examine how the release of legal fish might affect a fishery. The approach was to develop a general population dynamics model for addressing voluntary release and to use the model to study its impact on four fisheries with widely different characteristics of growth, mortality, and fishing: a brook trout (Salvelinus fontinalis) fishery in a small stream, a largemouth bass (Micropterus salmoides) fishery in a 400-ha reservoir, a brown trout (Salmo trutta) fishery in a 30-m-wide river, and a northern pike (Esox lucius) fishery in a typical lake. Results for all four fisheries were similar in showing that the voluntary release of fish can have a substantial impact on a fishery if more than 10% of the legal fish caught are released. By altering the effective fishing mortality rate, it caused changes in fishery statistics to occur even though fishing effort and catch rate remained constant. More field studies are needed to understand the nature and extent of voluntary release of legal fish. Also, fisheries managers need to estimate voluntary release of fish, along with harvest and fishing effort, if they want to assess a fishery accurately.

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