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North American Journal of Fisheries Management 1987;7:91–105**Effects of Stocking Catchable-Size Hatchery Rainbow Trout on Two Wild Trout Species in the Madison River and O'Dell Creek, Montana**

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Abstract.—The fall population of 2-year-old and older wild brown trout (*Salmo trutta*) more than doubled (160% increase), in both total numbers and biomass, 4 years after the last catchable-size hatchery rainbow trout were stocked in the Varney section of the Madison River, Montana; wild rainbow trout (*Salmo gairdneri*) numbers increased eight times (868%) and their biomass increased 10 times (1,016%) during the same period. Brown trout biomass peaked within 2 years after stocking ceased, whereas wild rainbow trout biomass continued to increase for 4 years. Numbers of wild brown and rainbow trout 10.0–17.9 in long showed the greatest increases after stocking ceased. Flow variations had little effect on the total biomass of 2-year-old and older wild trout during stocking years ($t = 1.24$), but stocking had a significant negative correlation ($r = -0.953$) with total biomass. When catchable-size hatchery rainbow trout were stocked for three consecutive years into a previously unstocked section of O'Dell Creek, Montana, the 2-year-old and older wild brown trout population was reduced 49% in total number and biomass. Wild brown trout 10.0–17.9 in long showed significant declines in numbers after stocking was initiated, whereas those smaller than 10.0 in showed no significant change in numbers. A temporary decline in growth rates of yearling through 4-year-old brown trout was observed in O'Dell Creek during the first 2 years of stocking. Measurable movement of marked wild trout in the lower (stocked) section of O'Dell Creek accelerated during years of stocking. Stocking of catchable-size hatchery rainbow trout had no detectable adverse effect on wild brown trout through their first 18 months of life in either lower O'Dell Creek or the Varney section of the Madison River.

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