The Tinkerer's Trout Farm

To capture trout for sale out of a large trout pond, Tina, owner and operator of The Tinkerer's Trout Farm, developed a system of 60 hooks that was controlled via computer and could be dropped into the pond for any programed amount time. When the hooks were submerged for a fixed amount of time, Tina found that when the trout density of the pond was higher, more trout were caught, and when the density was lower, less trout were caught.

Presently, a local restaurant owner approached the trout farmer and asked to have 20 of her line caught trout delivered every morning to the restaurant. Tina upgraded her hook system so that each hook sent a signal to a computer when a trout was caught. The new system raised out of the water and processed the trout after 20 trout were caught on the hooks. Hence, each day the catch of 20 trout was the same. Tina now found that the time of retrieval for the hook system to catch the 20 trout changed with the trout density of the pond. She noted that retrieval time is actually a rate, e.g. 20 trout in 5 minutes would be an average four trout per minute; 20 trout in 2 minutes would be 10 trout per minute. Tina's real-time system, with immediate action from external stimulus, gave a quick estimate of the trout density within the pond. This allowed catch rate (measured essentially without error) to be an independent factor that predicted relative trout abundance in her pond. Less soak time reflects higher density and longer soak times reveals lower density and a time to restock the pond with trout, i.e. management action.