

Who am I and how am I doing?

How do scientists use technology to identify animals and monitor the health of their populations?

When scientists are managing animal populations, they need to keep track of the animals and how they are doing. As part of their work, scientists use many different methods to monitor the health and survival of animal populations.



Each year, NYS Department of Environmental Conservation (DEC) stocks more than 3.5 million fish into Lake Ontario for people to catch, as well as to help rebuild fish populations affected by poor habitat conditions and invasive species. Biologists sometimes need to know more about what happens to fish after they are stocked, such as whether the fish survived, how well they survived, which “families” from the hatchery survived best, and where the fish were caught. A new tool, the AutoFish system, allows DEC scientists to identify each stocked fish and monitor how they are doing. The AutoFish system is controlled by complex machines and computers that measure every fish and insert a tiny coded wire tag, or CWT, into the snout (nose) of each fish. Each CWT has tiny numbers on it that can be read only under a microscope.



When a fish is caught, the snout (or sometimes the entire head) is removed and sent to the scientists to analyze. When a CWT is removed from the snout and read, it tells which hatchery the fish came from (and even which tank in that hatchery); where, when and how the fish was released; who its parents were; and how old it was when it was caught. This helps DEC managers learn which fish and stocking methods did best and helps them do a better job of making fishing great in New York State.



Another tool scientists use to monitor animals is called a PIT-tag

(Passive Integrated Transponder tag) These tiny tags are attached to the animals being studied and are used to identify individual animals and monitor their movement. Scientists are using PIT-tags to study bats, which are declining due to a disease called white-nose syndrome. Some bats spend the winter hibernating in caves. Unfortunately, caves are also ideal habitat for a fungus that causes white-nose syndrome. This disease has killed a lot of bats, and scientists are trying to determine the status of the remaining bat population. PIT-tags are glued to the backs of bats before they go into caves to hibernate, and a series of antennas is placed near the entrances of the caves. When bats fly past the antennas, a device records a unique signal from each tag. This works in much the same way as the EZ-Pass® toll system and allows scientists to identify individuals based on the tag they are wearing. By keeping track of which bats fly out of the cave after hibernation is over, scientists can get a better idea of how many bats survived the winter and why some did better than others.

