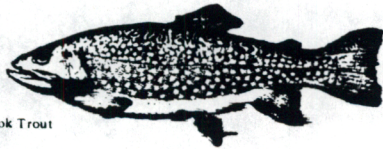


For those individuals owning or managing streams, the old saying "May you live in interesting times" is certainly applicable in these "new" times. The pressures created by the demands to allocate primary or exclusive use of our waters to conflicting uses has again returned to our streams. In the last century it was water powered dams, clay road erosion, and sawdust pollution that conflicted with free passage of trout, salmon, and other fish. Now it is conflicting demand from fish farming, salmon and trout enhancement, waterfowl enhancement, irrigation, fur bearer management (beavers), and other uses.



Black Duck



Brook Trout

The first of the problems arises from exclusive use of a section of water. A good example of this occurs when a pond is converted to an in-stream caged fish farm for angling purposes. If the owner does not utilize appropriate netting over the cages, fish predators such as Belted Kingfisher, Double-crested Cormorant, Great Blue Heron, Osprey, or mink can quickly become a problem for the fish farmer. The ensuing predation can lead to requests for special permits to remove the "problem" birds or mammals. Another aspect of in-stream cages is the buildup of fish food under the cages or an increase in feces from large numbers of fish in a small area. Both can create water pollution problems. Predator problems can also occur from other types of fish farms if they do not use enclosures around their cages.

A second type of conflict arises from water withdrawal from streams. If the water is returned directly to the stream unchanged chemically or thermally e.g. low-head hydroelectric siphon systems, the only management concern may be preventing fish from being sucked into the pipe and the mortality caused by fish hitting the turbine blades. Regulations limit the volume of water that can be removed from a stream during the various portions of the year and screens must be installed to divert fish from the entrance. In addition, water specialists have developed equations to assist in calculating the natural flow rates of different streams. However, not all water withdrawals return water to the stream at the same temperature or chemical quality. If the water is used to culture fish, it will pick up nitrogen and other materials from the feces, food, or medications. Properly handled, the water quality problems can be minimized but the compounding effect of multiple developments on single streams could lead to problems. In addition, cultured fish escapes from the aquaculture facility can cause genetic shifts in the native fish or introduce new species or problems to a stream. Irrigation water is still another reason for removing stream water. Unfortunately, irrigation water is needed most during dry years and the stream flow is already reduced. A considerable portion of the irrigation water evaporates and that which does not must either percolate down through the soil or run across the land to return to the stream. In either case it will pick up additional chemicals.

The latest conflict has been present for some time but is only now becoming recognized as a potential problem. One of the primary means of