10

STOCKING PRACTICES AND DISEASE CONTROL

ROBERT H. GRIFFITHS
New York Department of Environmental Conservation
Albany, NY

Wild stocks of fish generally are free of epizootic diseases. Outbreaks of serious contagious diseases are normally associated with the intensive culture of fish in a hatchery environment. The release of hatchery reared fish should be programmed to reduce the risk of spreading disease to fish in wild environments.

Discontinuance of stocking diseased fish has resulted in the apparent disappearance of hatchery disease since monitoring failed to detect those pathogens in fish from natural waters. Yamamoto and Kilistoff (1979) and Rosenlund (1977) have shown that planting IPNV-free fish in water previously planted with IPNV-carrier fish, over several years, resulted in a decline in the incidence of IPNV detected in the fish population. Herman (1970) noted that disease management plans should include prevention of contact between pathogen and host. Sonstegard and McDermott (1972) stated that "planting IPNV-infested fish in natural waters creates a potential source of infection and that if egg collections are to be made from wild stock, it is important to maintain fish in the natural environment as free of disease as possible". It is the goal of the Great Lakes Fishery Commission "to restrict the spread of certifiable fish diseases, to contain them within their known geographic range and to strive for their elimination". The several techniques and practices designed to accomplish this goal include encouragement of each member, provincial or state agency, to prevent the release of seriously diseased fish and to prevent the movement of fish infected with certain certifiable disease into or within the Great Lakes basin.

PROCEDURES

The Great Lakes Fish Disease Control Committee recommends that several procedures be adopted as policy by all agencies that might stock fish in the

Great Lakes basin. These procedures include:

1. Avoid the release of diseased fish which are suffering an active epizootic, regardless of the pathogen or parasite involved. These fish could be a potential source of infection through horizontal transmission of disease agents to wild populations. The added stress of loading, transporting and stocking could also lead to high post-stocking mortalities if the fish are carrying disease.
2. Prevent any releases of fish that have been exposed to or are known carriers of a certifiable disease.
3. Hatcheries "sing surface water supplies usually cannot produce disease-free stocks. Hatcheries with closed water supplies (wells and/or springs) avoid introducing diseases assuming that no fish or eggs from other locations are allowed in the hatchery and eradication can be carried out should a disease be introduced.
4. No matter what the nature of a hatchery water supply, it is recommended that fish "ever be released in hatchery headwaters. Even if the risk seems remote, it is not advisable. Carrier fish could infect the water supply and continue to reinfect hatchery stocks for as long as they remain in the water supply system.

If agency program requirements prohibit destruction of fish with emergency or certifiable disease, stocking sites should be selected in areas where the disease is already endemic, in remote areas, or in areas not intended to provide wild broodstock. Bacterial kidney disease is not classified as a certifiable disease although it should also be included in these stocking practice guidelines.

REFERENCES

Herman, R. L. 1970. Prevention and control of fish disease in hatcheries, p. 3-15. In S.F. Snieszko (ed.) A symposium on diseases of fishes and shellfishes. Am. Fish. Soc., Spec. Publ. 5. Bethesda, MD.

Rosenlund, R.D. 1977. Infectious pancreatic necrosis virus at the Willow Beach National Fish Hatchery, Nevada, in rainbow trout stocked into adjacent Lake Mohave. Fish Health News 6: 10-13.

Sonstegard, R.A., and L.A. McDermott. 1972. Epidemiological model for passive transfer of IPNV by homoiotherms. Nature. 237: 104.115.

Yamamoto, T., and J. Kistoff. 1979. Infectious pancreatic necrosis virus: quantificatio" of carriers in lake populations during a 6-year period. J. Fish. Res. Board Can. 36: 562-567.