Catch-and-Release Policy Guidelines

Executive Summary

The use of catch-and-release practices by anglers is increasing. This increase is a result of both anglers viewing the process as a conservation technique and because catch-and-release practices are being mandated by fisheries managers. Despite the widespread use of catch-and-release, there is generally a lack of understanding regarding the mortality caused by the practice and how variation in catch-and-release techniques may affect the level of mortality.

Fortunately, the increase in catch-and-release practice by anglers has coincided with an increase in research examining catch-and-release practices. While most of the studies to date have been species specific, there are general recommendations that can be made based on the available information.

While catch-and-release is physiologically stressful, following some general catch-and-release guidelines can minimize stress and therefore mortality. Gear should be appropriate for the species being angled, allowing for quick retrieval. The use of single barbless hooks should be used to reduce the amount of time required to release fish. Air exposure should be minimized and fish should be released quickly. Depth of capture, hooking location and bleeding should be taken into account when deciding on whether or not to release a fish. When performed correctly, catch-and-release can be successful with minimal harm to the fish and should be encouraged.

Introduction

Over the last several decades catch-and-release has become a common practice among anglers. Catch-and-release may be practiced either voluntarily or because it is mandated. Size limits are used as a management technique in many waters for a variety of fish species. Fish may be required to be released if they are under a minimum size limit, over a maximum size limit or within a protected slot size. Additionally, anglers may voluntarily practice catch-and-release as a conservation technique.

The MFA strongly recommends single barbless hooks as an alternative to barbed hooks to decrease catch-and-release mortality. Barbless hooks have been demonstrated to reduce handling time through ease of removing the hook, thereby decreasing associated mortality (Cooke et al., 2001). Schaeffer and Hoffman (2002) also demonstrated that the unhooking times of barbless hooks were significantly shorter than barbed hooks, however, the same study indicated that anglers landed 22% more fish using barbed hooks than barbless hooks. It has also been suggested that barbless hooks reduce tissue damage. Thus, while barbless hooks are generally less harmful to fish, anglers may be reluctant to use them because they perceive that catch rates will suffer.

Hooking Location

The location of hooking has been shown to affect catch-and-release mortality. Catch-and release was directly related to hooking location, and all mortalities involved hook damage to the visceral region (Aalbers et al., 2004). Dextrase and Ball (1991) found that hooking mortality of lake trout was largely restricted to those fish that were deeply hooked. Schisler and Bergersen (1996) reported that mortality of rainbow trout was significantly greater for fish hooked in the gill arches or esophagus than superficially hooked fish, and this increased mortality was attributed to bleeding intensity associated with hooking location. These studies all point to the fact that fish, which are deeply hooked, suffer increased mortality.

Bleeding

Myers and Poarch (2000), found that the occurrence of bleeding in hooked fish was related to both mortality and hooking location. Of 19 bleeding fish, 47% died, whereas only 20% of non-bleeding fish died. Bleeding was observed in 48% of fish hooked in the throat and 50% of fish hooked in the gills, whereas only 1% of fish hooked in the mouth bled. Similarly, results from Arctic grayling show that bleeding intensity was related to hooking location, however, in this study there was no relationship between mortality and bleeding intensity (Clark, 1991). Schisler and Bergensen (1996) found that mortality in salmon was significantly related to bleeding intensity. Their model predicted that the probability of mortality increased from 16% with no bleeding to 40% with heavy bleeding. Mortality has also been found to be significantly related to bleeding in cutthroat trout. Mortality was 6.5% in non-bleeding fish and 52.8% in fish that bleed (Pauley and Thomas, 1993). These studies all show that the chance of mortality increases if fish are bleeding, thus, anglers should keeping salmon that bleed profusely.

Temperature

Evidence suggests that catch-and-release mortality is directly related to water temperature, with mortality increasing at extreme temperatures

Nuhfer and Alexander (1992) found that mortality increased with water temperature in salmon that were bleeding from the gills or throat area as a result of hooking. Mortality has also been found to increase with water temperature, suggesting the temperature during air exposure may be more important in determining survival than actual water temperature. These studies demonstrate that catch-and-release mortality increases with temperature and special care should be taken when fishing during extremely warm weather, and your thinking of releasing the salmon.

Air Exposure

While air exposure did not result in any mortality, bradycardia (decreased heart rate) was observed during air exposure and cardiac output increased after fish were returned to the water. Simulated angling (fish were chased for 30 s) resulted in increased cardiac output and arrhythmia (irregular heartbeat). Fish that had 30 s of air exposure required 2 h for full cardiac recovery while fish that were exposed to air for 180 s required 4 h to fully recover (Cooke et al., 2001). These studies demonstrate the detrimental effects of air exposure, and highlight the need to reduce handling time and air exposure during catch-and-release.

Mörrum Fishing Association