

Research cautions to catch-and-release in less than 4 minutes

September 27 2007

Recreational fishing that involves catch-and-release may seem like just good fun, and that released fish go on to live happily ever after, but a recent study at the University of Illinois shows that improper handling techniques by anglers can increase the likelihood of released fish being caught by predators.

After the stress of the catch and lack of oxygen from being out of water, the fish is in a weakened state. When it eventually gets released back into the water, if fish haven't been handled properly, they are more likely to be caught by a predator.

A study on the effects of catch-and-release angling on bonefish which was conducted by a team led by University of Illinois researcher Cory Suski. The article is available online in the journal *Comparative Biochemical and Physiology Part A* and will be published in an upcoming issue.

"Whenever a fish is caught and reeled in, it expends a lot of energy so that's one stressor," said Suski. Depending upon the skill of the angler, the catching can last a long time and put additional stress on the fish. When the fish is brought up on the deck or in the boat to measure and take a picture, it faces an additional challenge and cannot obtain enough oxygen, and the fish continues to accumulate physiological disturbances. "Our recommendation to catch-and-release sport anglers is that they minimize the time it takes to actually land the fish and take a picture, and then get it back into the water as soon as possible."

Suski's goal isn't to eliminate catch-and-release sport fishing; in fact he hopes the research will help conserve fish populations and the economic benefits from recreational fishing.

How long can a fish be out of water" Results from the study showed that both the duration of an exercise bout (the catch) longer than four minutes, as well as the length of exposure to air, will result in a proportional increase in negative effects on the fishes' physiological condition. The study also showed that the longer duration of the catch-and-release, the longer the time the fish needed to recover and the greater likelihood of the fish being caught by predators.

The fish in the study were caught in nets, put into dark tanks and allowed to rest. Later they were chased to simulate angling. Blood samples were taken at various time intervals after the angling simulation in order to monitor the levels of calcium, lactate and glucose during recovery.

"We found that it took two to four hours for the fish to recover to normal levels. We also observed that early during the recovery time the fish were acting kind of woozy -- that behavior would mean they would be less likely to out-swim a predator," said Suski. "Our study indicated that the four-hour recovery for bonefish is sufficient for at least some physiological variables to return to baseline values."

Suski likened the fishes' physiological changes when being caught to the lactate that builds up in a runner's muscles after running a 100 yard sprint. The runner's heart rate and breathing may return to normal fairly quickly, but the lactate build-up can take a much longer time to return to normal.

The study identified several strategies for fisheries management in catch-and-release settings:

- 1) Minimize the length of time spent angling the fish
- 2) Minimize the length of time the fish is exposed to air after being caught
- 3) The longer that the fish is presented with challenges, the longer it will take to recover after being released
- 4) The temperature of the water can also affect recovery time -- warmer water may increase recovery time.

Source: University of Illinois at Urbana-Champaign

Citation: Research cautions to catch-and-release in less than 4 minutes (2007, September 27)
retrieved 26 April 2024 from
<https://phys.org/news/2007-09-cautions-catch-and-release-minutes.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.