

Catch & Release - It's Catching On!

Lesson Time : 75-90 minutes

Grade Level : 9-12

Vocabulary: catch and release, circle hook, barotrauma

Summary

Investigate trends in catch and release fishing with data from the National Marine Fisheries Service Marine Recreational Fisheries program.

Objectives

- Identify effects of catch and release programs.
- Compare trends in capture, harvest and release rates for two species of fish.
- Predict fishery health from changes in fish harvest and release rates.

Introduction

It's catching on! A new generation of ethical anglers concerned about conserving resources is participating in "catch and release" fishing. Many recreational anglers assume that their impact on the resource is negligible since they only take a few fish. In fact, there are fisheries in which the recreational harvest equals or exceeds the commercial harvest. Some of these fisheries with high sport harvest include bluefish, red drum, striped bass, Spanish mackerel, spot, spotted seatrout, summer flounder, and winter flounder. It is especially important to release undersized fish so they have a chance to mature, reproduce, and replenish the stock. Additionally, after you've kept the fish you intend to eat and your trophy fish, carefully releasing the rest will help ensure conservation of stocks for the future.

In 2018, the total recreational harvest of all finfish caught from Maine to Texas, Oregon to California, and Puerto Rico was over 319 million fish. When anglers take a few fish per trip, it adds up! Commendably, in 2018, anglers also caught and released over 562 million additional fish. (NOAA Fisheries Service Marine Recreational Database, Accessed 11 March 2019.)

But what happens to fish after they're released alive? Do they survive? Studies show that released fish have a good chance of surviving, and some techniques have been developed to further improve those odds. One cause of release mortality is swim bladder inflation. When fish are brought to the surface quickly from depths over 30 feet, their swim bladders often rupture due to the pressure change. The air from the swim bladder is then trapped in the gut cavity. This is called barotrauma.

New techniques involve venting the air by making a small puncture wound. The puncture wound has a good chance to heal because it's small and covered by scales and muscle. The swim bladder heals in about four days.

Another popular catch and release tool is the circle hook. The circle hook is very successful in hooking the corner of a fish's mouth rather than its internal soft tissue or organs. One charter boat captain champions the cause of using circle hooks for billfishing and will accept charters only by those who are willing to fish this way. In his experience, this practice results in both an increased rate of catch and a vastly improved condition of the fish caught. His dedication to billfish conservation earned him a 1997 award from the Billfish Foundation for tagging and releasing the most billfish ever by a boat captain in a year.

Anglers who practice catch and release fishing often participate in tagging programs. Tagging programs provide scientists with information about the migration, movement and growth of fish. This type of information is critical to the determination of management measures to protect fish, and there are many tagging programs in which anglers can participate.

Another way catch and release anglers are recognized is through fishing tournaments. Sponsors of fishing tournaments are encouraging catch and release by giving citations for fish caught and released. The International Game Fish Association has been responsible for converting kill tournaments to a release format in many areas of the world. Read more about their catch and release/tag and release efforts under "Conservation". You may also be interested in joining their Junior Angler Club.

Learn how to determine whether to keep or release fish depending on the circumstances of the catch and read about other practices to improve survival of released fish from the Virginia Department of Wildlife Resources Catch and Release Guide for Striped Bass:

<https://dwr.virginia.gov/blog/catch-and-release-best-practices-to-serve-striped-bass>

Data Activity

To investigate the trend in catch and release fishing with a couple of species, go to the National Marine Fisheries Service's Marine Recreational Fisheries Statistics page:

<https://www.fisheries.noaa.gov/data-tools/recreational-fisheries-statistics-queries>

Under **Catch Data**, click on **Time Series** then **Goto Query**. We are going to compare the total number of fish caught and released versus the total number of fish caught and harvested for two species of fish (striped bass and bluefish) in the Mid Atlantic for each year between 1981 and 2025. So, begin by making the following selections:

Year Range: **From 1981 to 2025**

Summarize By: **Annual**

Geographical Area: **Mid-Atlantic**

Species: **Striped Bass**

Type of Fishing: **All Modes Combined**

Fishing Area: **All Areas Combined**

Type of Catch: **Released Alive (Type B2)**

Information: **Numbers of Fish**

Output Form: **Graph**

Submit Query, and print out the graph.

Repeat for striped bass caught and harvested:

Year Range>: **From 1981 to 2025**

Wave: **Annual**

State/Area: **Mid-Atlantic**

Species: **Striped Bass**

Type of Fishing: **All Modes Combined**

Fishing Area: **All Areas Combined**

Type of Catch: **Harvest (Type A & B1)**

Information: **Numbers of Fish**

Output Form: **Graph**

Submit Query, and print out the graph.

Run the same query for cobia. Compare the trends.

More Information

- Is the number of **striped bass released alive** increasing or decreasing? Is the number of **striped bass being harvested** increasing or decreasing?
- Are these trends the same for cobia?
- What could you guess about the health of a fishery in which the number harvested is decreasing and the number released alive is increasing?
- What factors might lead to the increase in the number of fish released alive (e.g., change in minimum catch size, change in the average length of fish being caught, increased awareness of anglers, etc.)?
- From 1984 to 1989 there was a partial moratorium (ban) on fishing for striped bass. What effect could a management or regulation change like this have on fish harvest numbers?

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