

WHAT HAPPENED TO WEAKFISH?

By Russell L. Allen, Principal Fisheries Biologist

What happened to weakfish? Everywhere I go these days, that is the question anglers ask the most. The plight of the weakfish has been a perplexing saga involving a myriad of potential limiting factors over which fisheries managers have little or no control. There are many theories as to why weakfish have declined so rapidly in recent years but there exists little data to provide adequate insight as to the exact *cause* of the decline. However, before we focus on the current status of weakfish and present-day management concerns, it's best to look back in time at the management process for a better understanding of how our knowledge of the weakfish population decline evolved.

Weakfish were overfished, by both commercial and recreational fishers, beginning in the mid-1970s through the 1980s. If you did not live the stories about overfishing in Delaware Bay, likely you heard about it. Overfishing stimulated local management measures through voluntary efforts by the states of New Jersey and Delaware, and coastwide management through the auspices of the Atlantic States Marine Fisheries Commission (ASMFC).

FISHERY MANAGEMENT PLANS EVOLVE

In 1985, the ASMFC developed and adopted a coastwide Weakfish Fishery Management Plan (Plan) in an attempt to protect the species from overfishing but it was inadequate to stop the weakfish decline. A few years later, New Jersey and Delaware formed the Bi-State Weakfish Commission, which made recommendations to the states' fisheries agencies and adopted regulations to restrict the weakfish harvest in their waters. At the request of both states, the ASMFC also began to update the Plan. Amendment 1 was adopted in 1992 with Amendment 2 close behind in 1994. Unfortunately, management measures outlined in these documents were voluntary and went largely unheeded, so weakfish stocks continued to decline. The passage of the Atlantic Coastal Fisheries Cooperative Management Act in 1993 finally put some regulatory teeth into the ASMFC, which mandated that states fully implement the provisions of the Plan and its amendments.

By 1996, the Atlantic States Marine Fisheries Commission had adopted Amendment 3 as a long-term recovery plan to restore weakfish to healthy levels in order to maintain commercial and recreational harvests consistent with a self-sustaining spawning stock. The major objective of Amendment 3 was to restore the weakfish population over a five-year period by reducing fishing pressure 32 percent in both the commercial and recreational fisheries. The results were impressive and in the late 1990s, the outlook was better for the future of weakfish. Amendment 4 was passed in 2002 to set more appropriate fishing targets as the stock continued to rebuild.

GOING UP OR GOING DOWN?

Unfortunately, no one told Mother Nature. While managers were preparing for a weakfish resurgence, something else was happening—unknown to anyone—which would eventually cause a rapid increase in weakfish mortality. But first let's focus on what took place.

According to the ASMFC's 2000 stock assessment, the weakfish spawning stock had exceeded expectations and was continuing to increase while recruitment of young weakfish had reached more than 60 million per year. The percentage of older fish (six years and older) in the population had increased from a low of 0.3 percent in 1996 to a high of 6.9 percent by 2001. However, there were also disturbing signs. Landings were decreasing. Other indications from independent fishery surveys suggested that the situation was not as rosy as the assessment appeared. Some of the ASMFC's Technical Committee members also were not convinced population growth was occurring. So they worked diligently to analyze all available data, which eventually confirmed that the species had actually taken a turn for the worse.



The Technical Committee's work proved that weakfish biomass had actually been declining since 1995 to an all time low by 2007.

SO WHAT HAPPENED TO WEAKFISH?

Recent analysis indicates that fishing mortality did not cause the rapid decline, but that natural mortality has increased substantially since the late 1990s. Natural mortality can be described as deaths from all non-human induced activity. Some of the more common issues potentially affecting weakfish are predation, competition, environmental stressors and lack of food.

The conventional methodologies for assessing weakfish were obviously not working, so in 2004 the ASMFC Technical Committee began working on alternative research models that take into account trophic interactions—or feeding relationships—among certain species. These interactions are especially useful when factoring in predation by striped bass and spiny dogfish on young weakfish. The results of various research models showed an increasing trend in natural mortality that has led to the weakfish stock being labeled as depleted. But to convince others to believe the ASMFC Technical Committee was another story. It took five years for the rest of the scientific community to fully accept the Technical Committee findings and this relatively new concept. The result is a 2009 peer-reviewed and accepted stock assessment outlining that natural mortality is the culprit behind the current depleted state of the weakfish stock.

So what are the natural mortality factors weighing on weakfish? Several scientific models were used to explore likely scenarios of increasing natural mortality. All models investigated indicate that the weakfish spawning stock was very low. The analyses found that factors such as predation, competition and changes in the environment have had a stronger influence on recent weakfish stock dynamics than has fishing mortality. Predation from striped bass and spiny dogfish definitely dominate the conversation when talking to the public, but there are many other factors that could influence a weakfish downturn.

Competition with Atlantic croaker, decreasing prey items such as bay anchovy and Atlantic menhaden and increasing water temperatures may all be playing key roles in the weakfish decline. Projections suggest that little

stock growth is possible with the current high mortality levels, even if the East Coast were under a harvest moratorium. This is because current fishing mortality represents only a small component of total mortality, thus considerably reducing the management “leverage” of a moratorium. The bottom line is that weakfish have declined and the Atlantic States Marine Fisheries Commission must do *something*.

NEW AMENDMENT REDUCES HARVEST

Last November, the ASMFC’s management board voted to approve Addendum IV to the Weakfish Fishery Management Plan, which included a requirement to reduce harvest by more than 50 percent through a one fish recreational bag limit and 100-pound trip limit for commercial fisheries. Although many options were on the table, the ASMFC decided this was presently the best management fit. Managers realize that rebuilding the weakfish stock will also require a reduction in natural mortality, which they have limited ability to influence. However, these current regulations were enacted to allow rapid growth in the stock should natural mortality decrease.



Ray Szulzewski, TideKum@aol.com

WHERE DO WE GO FROM HERE?

It will take time for weakfish stocks to return to the glory days of the late 1970s and early 1980s. However, because of their prolific spawning potential, weakfish could make a rapid recovery if natural mortality declines. Current production of young weakfish has remained stable in recent years so the table is set already if these year classes are able to survive. Published articles from the 1970s documented an increase in large weakfish resulting from the last weakfish population explosion, so the potential for a strong recovery exists.

DO YOUR PART

The key to a successful weakfish recovery will be to significantly increase the population in the older age classes to ensure a better age structure of the stock. (See *What Do Fish Tell Us?* for more on biological sampling, page 28.) New Jersey Division of Fish and Wildlife encourages anglers to practice catch and release during this current low level of the weakfish population. Anglers are invited to work with Fish and Wildlife by logging onto our online Volunteer Angler Survey (see page 8) whenever you catch a weakfish—or take any fishing trip for that matter—to provide us with as much information as possible. Your valuable input will go a long way towards helping biologists track the recovery of this once-plentiful fish.

REFERENCES

- <http://sportsillustrated.cnn.com/vault/article/magazine/MAG1088653/index.htm>
- www.asmfc.org

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Angler Survey Needs YOU!

By Jeff Brust, Research Scientist

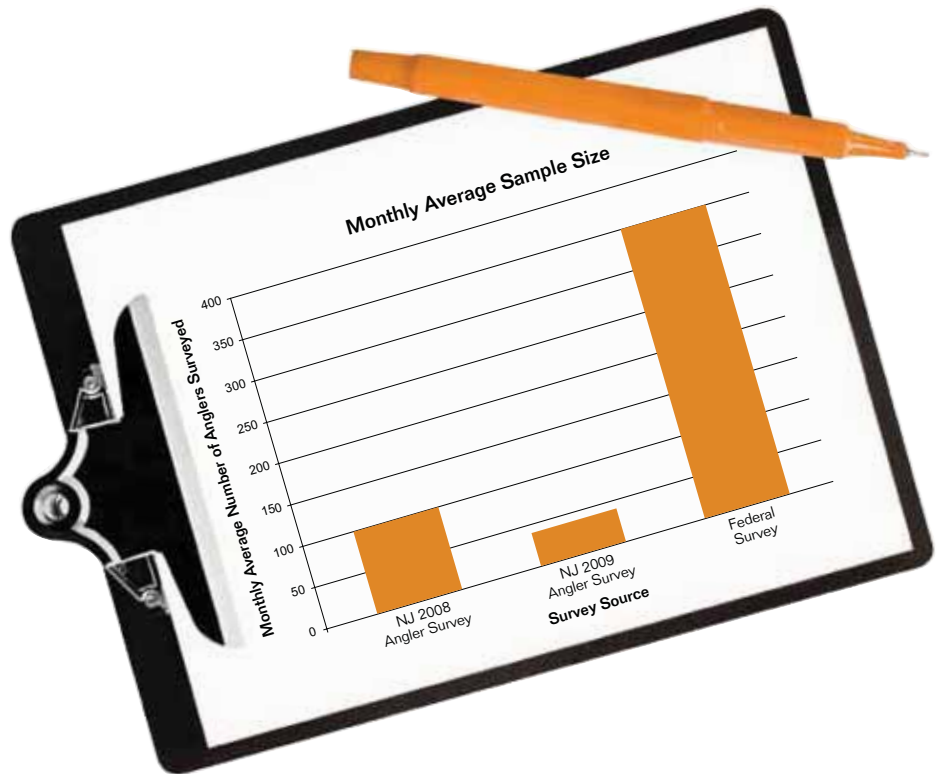
Are you frustrated with current recreational fishery management regulations in New Jersey? If so, you are not alone. The increasing discontent over the fishery management process is no secret to fishery managers. It seems as if everywhere I go, when I mention my position with New Jersey Division of Fish and Wildlife's Bureau of Marine Fisheries, I get the same negative reaction.

Case in point: Last June at my kids' dentist office, the receptionist requested basic information for my file such as name, Social Security Number, occupation. After telling her I am a fishery biologist for the state, she glared over the top of her glasses and snarled, "Are you responsible for these @#*&! fluke regulations?" I took a step back—just to be safe—before admitting I am involved in the process of setting regulations for many of our species. She recounted a recent fishing trip with her son where they caught a large number of "shorts" but not a single keeper, and how the regulations are killing the fishery. Conversations like this one are not uncommon. More and more people are vocal about their dissatisfaction with the marine fisheries management system.

The Federal Survey

Much of the concern stems from the types and amount of data collected in the federal recreational survey, the primary source of recreational data since 1981. The limited number of samples collected each year can lead to large swings in results from year to year, making it difficult for anglers to have faith in the data being used to set regulations. In addition, although the federal survey data is used for state-specific management, the original intent of the survey was for broad-scale purposes. As such, the survey was not designed to collect data to support state-specific applications.

This leads to data gaps and uncertainty in the management process. The National Marine Fisheries Service (NMFS) has undertaken a major redesign of their recreational data collection program to address these concerns. The new system, the Marine Recreational Information Program (MRIP), will improve survey design and



performance to improve estimates of participation, fishing effort and catch. [Another useful tool improving on the old survey is the creation of the National Saltwater Angler Registry. In 2010, all saltwater anglers in New Jersey—and other certain coastal states—must register online (www.countmyfish.noaa.gov) or by phone (1-888-674-7411) before fishing for marine or anadromous species.] Yet even with these improvements, the Program still will not collect certain information necessary for state-specific fisheries management.

New Jersey's Own Angler Survey

Because of these limitations, in 2008 New Jersey Division of Fish and Wildlife implemented an online Volunteer Angler Survey (Survey) to collect information on saltwater fishing trips, including some not collected by the federal survey. Data collected through our voluntary survey will be used to increase our understanding of New Jersey's valuable marine resources and to investigate alternative management strategies that could improve recreational fishing opportunities here. The open access design of the Survey means you don't have to wait for someone to ask you about your fishing trip. Everyone with Internet access can submit their information anytime by accessing the Survey Web page at NJFishandWildlife.com/marinesurvey.htm.

A Proven Management Tool...

To demonstrate the value of the state Volunteer Angler Survey, data from 2008 and 2009 were used to investigate New Jersey's 2010 summer flounder management options, including seasons and bag limits for minimum sizes as small as 16 inches. This type of analysis

would have been impossible without our Survey data because the federal survey has not collected information from New Jersey anglers on fluke smaller than 18 inches in recent years. Also, the New Jersey Survey can improve our understanding of participation, catch rates and fish lengths from early season fisheries such as tautog, scup and winter flounder during January and February when the federal survey is not conducted. These are just two examples of the many ways data from the Survey could benefit Garden State anglers.

...Only If Many Anglers Participate


But in order for the Volunteer Angler Survey to be really successful, we need your help! After being available for 18 months, Fish and Wildlife doesn't have the level of participation we need from anglers. To put things into perspective, the federal survey conducts about 350 to 400 dockside angler interviews per month in New Jersey. This represents a very small sample among anglers. Consider that the same survey estimates that New Jersey has approximately 1.2 million anglers who take nearly 6.5 million fishing trips per year. In comparison, Fish and Wildlife received only about 100 Volunteer Angler Survey entries per month between June and December 2008 (the first year of our Survey). This is only about one-quarter of the anglers sampled by the federal survey. In 2009, our participation dropped to just 37 submissions per month; more than two-thirds of those submissions were from just 11 anglers—a far cry from 1.2 million! Such a miniscule sample size makes it next to impossible to justify the results of any analysis based on that data, such as the fluke management options mentioned above.

We know you are dissatisfied with the current fisheries management process. You've been telling us for years—and we listen. The Volunteer Angler Survey has the potential to improve the process, but you hold the key to making it work. This is a *volunteer* angler survey. No staff from our Marine Fisheries office will question you to collect data about your fishing trip as you walk back to your car. No calls at home to ask you how many trips you've taken in the last few months. No, this survey will only work if you voluntarily go to our Web site survey page and provide accurate data about your trip. If every angler in New Jersey submitted information on just one fishing trip annually, Fish and Wildlife would have 300 times more data than we do now—and much more confidence in our understanding of the fishery. Imagine the strength of our data if anglers completed the survey for multiple trips.

Increased Confidence in the Regulatory Process

Anglers now have a greater opportunity to be part of the marine fisheries management process. Submitting your fishing trip data is simple, free and entirely confidential. Accurate catch, effort, and length data reported through the Survey will help fill data gaps and provide a better understanding of our valuable marine resources. It's up to you to provide sufficient and accurate data to make this process succeed. Your confidence in the regulatory process will climb when it's based on your data and not an unknown sample of anglers. On the other hand, if anglers don't participate, biologists' understanding of the fishery will be limited to the federal survey data as in the past.

Improve Fishing Opportunities

So what are you waiting for? Spread the word about the New Jersey online Survey and encourage other anglers to submit their data. Remind your friends. Send them an e-mail with a direct link to the survey page once you've completed your own. Remember, data submitted through the Volunteer Angler Survey has a fantastic potential to improve our management capabilities and your recreational fishing opportunities. 

The New Jersey Volunteer Angler Survey is entirely separate from both the federal survey and the National Saltwater Angler Registry.



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Tips for Tips

By Captain Mark Chicketano, Marine Enforcement Region

Support the responsible use of New Jersey's marine resources. When reporting a violation, follow these tips to assist our marine conservation officers. Contact the New Jersey Division of Fish and Wildlife Law Enforcement dispatcher listed below.

Do's

- Leave a cell phone number. Your identity can still remain confidential.
- Get a full description of the violator's clothing, vessel, and/or vehicle including license plate or registration. If at sea, obtain a GPS location.
- Note the locations of hidden fish.
- Call back should you see the violator leave. If possible, note their direction of travel.
- State your location, including the county and municipality along with the street and nearest cross street if on land.

Don'ts

- Do not approach the violator in any way.
- Do not allow the violator to hear your call to Law Enforcement.

Report Violators

- Monday thru Friday from 8:30 a.m. to 4:30 p.m., contact Fish and Wildlife's Regional Marine Headquarters at (609) 748-2050.
- All other times, contact DEP's Trenton Dispatch at (877) WARNDEP.

The following publications are available by writing:

Nacote Creek, Research Station Publications
P.O. Box 418
Port Republic, NJ 08241

Shellfish Growing Waters Classification Charts

This publication is available free at any shellfish license agent and online at <http://www.nj.gov/dep/bmw/waterclass.htm>.

New Jersey Boaters Guide

Send a self-addressed stamped, #10 envelope (2 oz. postage).

New Jersey Pumpout Directory (free waterproof map)

Write to the Nacote Creek address above.

The following publications are also available online at NJFishandWildlife.com:

- **Guide to New Jersey Saltwater Fishing** (available online only)
- **NJ Reef News**
- **Party and Charter Boat Directory** (available online only)

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