

Lake Norman Striped Bass Management: A Conflict between Fishery Managers and Anglers

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Abstract: The North Carolina Wildlife Resources Commission (WRC) stocks striped bass (*Morone saxatilis*) fingerlings in Lake Norman to support a put-grow-and-take fishery. Members from 2 angling groups demanded the WRC raise striped bass stocking rates and increase available striped bass forage. The agency contended increasing stocking rates would exacerbate poor condition and slow growth among the lake's striped bass. Conflict between the WRC and anglers arose when the agency indicated it would not raise striped bass stocking rates, stock additional clupeids, or introduce alosids. An Advisory Committee was established consisting of non-WRC fisheries scientists, members of the 2 angling groups, several members of the fishing media, and local fishing guides. The dynamics of the Committee helped to mediate the conflict and permitted anglers and WRC managing biologists to develop more trusting and pragmatic relationships.

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The WRC has struggled with a segment of the angling community at Lake Norman, located north of Charlotte, to develop a mutually acceptable approach to striped bass management in the reservoir. In a series of meetings with a striped bass fishing club beginning in the mid-1980s, the club leadership and many of its membership stated their desire to WRC biologists for increases in the number and size of striped bass in Lake Norman. The WRC had to reconcile these wishes with limitations on the potential number and size of striped bass in Lake Norman imposed by the reservoir's low nutrient loading, summer water temperatures and dissolved oxygen (DO) concentrations stressful to adult striped bass, and hooking mortality and harvest associated with the popular fishery. A second group of anglers also interested in more, larger striped bass joined the discussions in 1998. Disagreement over the technical information germane to managing the reservoir's striped bass fishery led to conflict between the WRC and both angler organizations. This paper presents a history of the development of the agency/constituency discord at Lake Norman and a critique of the WRC's attempts to manage that conflict.

Conflict Background

Lake Norman is a 13,516-ha cooling reservoir for 2 Duke Power Company (DPC) electric generating facilities (DPC 1998). The reservoir is classified as

mesotrophic in its upper reaches and oligotrophic down lake. The reservoir thermally stratifies in summer at a depth of approximately 11 m. The hypolimnion is anoxic. Summer water temperatures frequently leave the reservoir devoid of any water <27.0 C with >2.0 mg/liter DO (Van Horn et al. 1999). Historically, gizzard shad (*Dorosoma cepedianum*) and threadfin shad (*Dorosoma petenense*) have been the clupeid forage base for striped bass. Recently, alewives (*Alosa pseudoharengus*) have established a reproducing population in the reservoir following their introduction by anglers. Striped bass have been stocked annually in Lake Norman since 1969 as phase I fingerlings (<7 cm) at a rate generally between 7 and 15 fish/ha. The fish do not reproduce in the reservoir.

Some striped bass anglers in the mid-1980s were concerned that the stocking rate for striped bass in Lake Norman was the lowest among the state's striped bass lakes at 7 fish/ha. Limited production capacity in the WRC hatchery precluded increasing the stocking rate to the state standard of 12 fish/ha. Anglers were concerned that even the state standard was much below stocking rates in adjacent states that approached 75 fingerlings/ha (Gene Hayes, S. C. Dep. Nat. Resour., pers. commun.). The WRC agreed in 1988 to stock 12 fingerlings/ha annually and was able to obtain fish from non-WRC sources and use occasional surplus production at its own hatchery to meet that goal. The WRC acquired another hatchery in 1992 and with the improved production capacity has met or exceeded the 12 fingerlings/ha commitment annually since that year.

In 1992, a group of anglers approached the WRC with their concerns that there were few striped bass >5 kg in Lake Norman. The fishery was regulated with 40-cm minimum length and 8-fish daily creel limits through most of the 1980s. There was a length limit exemption allowing anglers to keep up to 2 fish < 40 cm within the 8-fish daily creel. The concerned anglers perceived the harvest restrictions were failing to protect small fish sufficiently to allow the lake to produce larger fish. Therefore, they asked for a 56-cm minimum length limit and a 4-fish daily creel limit. Biologists expressed concerns that the more restrictive harvest regulations coupled with the higher stocking rates established earlier might reduce striped bass growth and lower condition. The WRC accepted the 4-fish daily creel limit but citing slow growth as the reason lowered the anglers' proposed minimum length limit to 51 cm.

Following a subsequent evaluation of the Lake Norman striped bass management changes, Van Horn et al. (1999) reported mean relative weights for striped bass in Lake Norman declined following the regulation changes and growth rates were lower than those reported from Lake Norman in the mid-1980s by Clausson et al. (1989). Mean relative weights from both June and December samples in the 1990s were approximately 80% (Van Horn et al. 1999). Mean relative weights in single seasons were as low as 70%. Few striped bass in Lake Norman exceeded 700 mm total length and 3.2 kg. Associated mean striped bass length at age data showed few Lake Norman fish exceed 700 mm by age 7.

The work leading up to and supporting the conclusions of Van Horn et al. (1999) created an impasse between the WRC and a segment of the striped bass anglers. The anglers were committed to the idea that stocking more fish and protecting

them longer would provide higher numbers of larger fish. They were confronted instead with evidence that Lake Norman's striped bass stocking rates and harvest regulations were working against larger fish. Equally disturbing to these fishers, the agency began considering reducing stocking rates or liberalizing harvest to relieve downward pressure on striped bass growth and condition. Biologists at several meetings endured insults and threats while many in the audience were frustrated the WRC offered little hope of providing significant gains in the numbers of large striped bass in Lake Norman.

Constituency Organizations

Two constituency groups have played the greatest roles challenging the WRC's striped bass management practices at Lake Norman. The Lake Norman Striper Swipers (LNSS) was formed in 1982 and is comprised of avid striper anglers and a few striped bass guides. The group meets monthly, sponsors striped bass tournaments, advocates for higher striped bass stocking rates, and promotes striped bass fishing at Lake Norman. Individual members advocated stocking additional shad or introducing blueback herring (*Alosa aestivalis*). The LNSS board of directors consistently resisted liberalizing striped bass regulations or reducing striped bass stocking rates.

The second group, the Lake Norman Fisheries Restoration Alliance (FRA), was organized in 1998. The FRA agenda included raising stocking rates, managing to improve clupeid production and introducing blueback herring. They also opposed less restrictive regulations. The FRA employed the printed media and sought influence with local elected officials to advance its agenda.

The WRC relationships with the 2 groups have been quite different. Because LNSS is the older of the 2 organizations, its history with the WRC began earlier. In its first decade, the group featured WRC biologists at its monthly meetings less than once a year. More recently, WRC visits have occurred annually. There was very little interaction between the agency and the LNSS members outside of these meetings until the past few years. LNSS advocacy played a role in the 1988 increase in striped bass stocking rates at Lake Norman.

Interactions between the FRA and WRC have been frequent. In addition to several meetings with the general membership, the FRA leadership has communicated often with WRC biologists. The first meeting with the FRA and WRC biologists occurred in June 1998. The FRA leadership was cordial but firm, stating their concerns that fisheries for all species in Lake Norman, including striped bass, were in decline. Based on decades of fish sampling conducted by both the agency and DPC, the WRC did not agree that all components of the Lake Norman fishery had significantly declined but did agree that larger striped bass were currently less common in the reservoir. The agency did agree to meet again for a more detailed discussion about the FRA's fisheries concerns and to look for ways to work together. At the second meeting a month later, the WRC biologist did not support further increases in striped bass stocking rates, had no recommendations for increasing shad production, and argued

against introducing blueback herring. When the FRA realized the heart of their agenda was not going to be expeditiously implemented, they changed strategies. They developed their own comprehensive fisheries management plan for Lake Norman reiterating their desire for more, larger striped bass. The FRA then began a campaign in the press and with local politicians and governing bodies to argue that Lake Norman had been mismanaged and find support for their lake management plan. They were particularly successful getting coverage of their concerns for the lake in the print media. The agency was ineffective presenting a counterperspective to the press. A meeting in September, the third that year, proved pivotal in the relationship between the WRC and both the FRA and the LNSS. The agenda included a review of the FRA's comprehensive management plan. The plan included a strong request for an advisory committee, and the WRC agreed to comply.

Moving Towards Improved Mutual Understanding

The Advisory Committee was created 2 months after the September meeting with the FRA. The Advisory Committee format outlined in the FRA's comprehensive management plan called for scientific representation from North Carolina State University, the U.S. Fish and Wildlife Service, and DPC. Those appointments were made and a fourth fisheries scientist was added to the committee at the FRA's request. This biologist was a former DPC biologist then practicing privately and living on the lake. The plan specified a representative each from the FRA and the LNSS. WRC leadership added a local fishing television show host affiliated with the FRA, an unaffiliated fishing guide, and a local outdoor writer. No WRC employees were assigned membership on the Advisory Committee, but the managing biologist for Lake Norman was made available to assist the Committee in its work.

The Advisory Committee was the first created by the WRC to provide input into the fisheries management process on a lake specific basis. The agency charged the Advisory Committee with the following tasks:

- 1) Review the status of all sport fisheries at Lake Norman.
- 2) Work with WRC staff to identify and clearly define problems that exist within these fisheries.
- 3) Review management and research proposals developed by WRC staff to address the identified problems and provide recommendations.
- 4) Periodically review the fisheries management and research projects being conducted at Lake Norman and provide comments to WRC staff.

The format was designed to leave the authority for managing the Lake Norman fishery with the agency. The role of the Committee was to identify problems and provide advice. The role of the agency was to develop solutions and get comments from the Committee. It was not the Committee's responsibility to develop a striped bass management program.

The principal products of the Committee were recommendations on forage management, striped bass stocking rates, and harvest regulations. The forage man-

agement position developed most quickly. The Committee recognized the poor condition and growth of striped bass in Lake Norman but rejected introducing blueback herring and supplementary stocking additional clupeids citing ecological and logistic concerns. The stance solidified when alewives were discovered in the lake during the Committee's deliberations.

Developing Committee recommendations on striped bass stocking rates and size and creel limits proved more difficult. Without a forage enhancement solution to poor striped bass condition, the Committee debated the idea of manipulating stocking rates and regulations in some combination to reduce the number of striped bass in the reservoir. A public meeting was held on Lake Norman in July 1999 to try and gauge angler opinions toward 2 options. The first was managing for high catch rates and small average size with high stocking rates and liberal regulations. The second option was to manage for larger fish by reducing stocking rates and using restrictive harvest regulations. The meeting was attended by fewer than 50 anglers but they angrily and unanimously argued for no changes in stocking or regulations and voiced support for stocking more shad. Most of the attendees were members of the LNSS or FRA.

The Advisory Committee continued to struggle with how to improve striped bass growth and condition into the year 2000. Losing patience, the WRC indicated that in the absence of a recommendation from the Committee, it would take some action to reduce the striped bass density in Lake Norman. In a final meeting that year, the Committee, over the objections of the LNSS and FRA representatives, recommended maintaining the current striped bass stocking rates but liberalizing the harvest regulations. The LNSS dissent was based on a desire to wait and see what impact the recently introduced alewife might have on the lake's striped bass. The WRC accepted the LNSS argument. As a condition of the delay, LNSS agreed to endorse less restrictive harvest regulations if striped bass condition did not improve. The delay was welcomed by the agency for scientific and public relations reasons. Changing regulations over opposition from the 2 angling groups would have cost the agency considerable public support.

There is a growing accord between the WRC and the LNSS leadership on the future direction of striped bass management at Lake Norman. Some of the more strident voices of opposition have left the organization or moderated their views. Although leadership in the FRA has developed a better working relationship with the lake's managing biologist, there is no evidence of movement in the organization's position on striped bass management at Lake Norman. How these changes may affect the Committee's effectiveness will be tested at future meetings after the WRC finishes its evaluation of the effects of the alewife introduction on striped bass growth and condition.

Lessons Learned

Striped bass anglers in the LNSS and FRA formed definite ideas independent of the WRC about what was wrong with the striped bass fishery and how to correct those deficiencies. The agency apparently failed to provide anglers with the necessary technical information or to develop the trust between anglers and agency staff to reach concurrence on Lake Norman striped bass management. In the absence of any substantive personal relationship with the lake's fishery manager to demonstrate otherwise, anglers were free to question the manager's motivations, competency, and work ethic. The WRC worked very hard on its relationship with both the LNSS and FRA, but only after the angler/agency relations had become problematical.

The WRC's first responses to the constituency group suggestions (increase striped bass stocking rates, stock shad, and introduce blueback herring) were all negative. It might have been helpful to recognize that the suggestions actually were strategies for accomplishing some goal (more and larger fish, in this case) (Fisher and Ury 1991). If WRC had talked about what could be done to address all or parts of the goal instead of identifying the flaws in angler sponsored strategies, the early conversations might not have been so brief and negative. Later, while maintaining that the size and numbers of striped bass could not both be increased simultaneously, the WRC did offer to manage for more fish or larger fish. This approach offered to meet part of the anglers' goals and gave them control of making the choice. It created a starting point for continued cooperation.

An important consequence of those initial conversations was that anglers had to either modify their ideas about striped bass management to accommodate the new information from the WRC or conclude the fishery manager was mistaken. With so much at stake, many of the anglers chose the latter. Once the manager's credibility was compromised in the minds of the angler's leadership, some other fishery professional's voice was necessary to provide interpretations of the relevant technical issues at stake.

The media were easily manipulated in the early stages of this conflict. Numerous stories appeared that were damaging to the WRC without any apparent effort by the media to research the relevant biological facts or interview agency people. Even local outdoor writers that understood and were sympathetic to the agency's position were unwilling to address the facts of the controversy in columns. Once the media were aware of the full text of the discussions between the WRC and the angling organizations, coverage became more balanced. Then the story disappeared from the press. The absence of coverage for the eventual angler/agency collaborative process was unfortunate.

The Advisory Committee proved useful in the following ways:

- 1.) The Committee gave credibility to the desire of the WRC to find common ground with the lake's striped bass anglers.
- 2.) The Committee provided LNSS and FRA a forum to express opinions on striped bass management.
- 3.) The Committee composition broadened the debate in the angling community

beyond the LNSS and FRA, allowing dissenting opinions within the angling community.

4.) Consistency between the perceptions of Committee biologists and the WRC biologist rehabilitated the credibility of the WRC among angling organization leaders and members.

5.) Teamwork and maintaining professional behavior created trust and improved working relationships among Committee members and WRC staff.

6.) News media coverage of the Committee meetings created the balance missing in earlier treatments of the conflict.

7.) Giving the Committee some responsibility for influencing striped bass management deflected the focus of criticism from the managing biologist.

The public hearing on striped bass management was designed to involve a broader constituency than LNSS and FRA. The meeting was poorly conceived, located, and promoted. The result was another public opportunity for the same people to subvert the goal of the meeting. The WRC needed to know who was fishing for striped bass at Lake Norman and to develop quantifiable attitudinal and opinion information representative of all striped bass fishing constituencies. The WRC's public hearing was a poor substitute for a properly designed social survey project.

Leadership of the LNSS and FRA evolved over the duration of the conflict. People with the loudest, angriest, most dogmatic voices initially played important roles defining differences between angler and agency expectations. However, as the task of finding common ground and working cooperatively became important, leadership styles needed to be effectively changed. Leaders unable to adapt marginalized themselves with all involved, even members of their own organizations. The tone of both groups grew more moderate and pragmatic with time.

Conclusions And Recommendations

- Managers need to be familiar with their striped bass fishing constituents at a personal level. A relationship with leaders of the striped bass community that establishes trust, confidence and openness can provide a buffer against potential conflict.

- Managers need quantifiable information on the attitudes and opinions of all striped bass fishing constituencies. Good human dimensions information can help managers develop appropriate management goals and measure program performance.

- Fisheries managers and striped bass anglers must share and discuss more technical information about the biology of reservoir striped bass management. Information exchange should occur at several levels from directly personal to employing mass media.

- Managers must recognize the difference between goals and strategies for meeting goals. Anglers are most competent to help set goals and less competent to devise strategies to meet goals. Focus on identifying goals in discussions with anglers and let managers develop appropriate strategies to meet those goals.

- Finally, should conflict become inevitable, the choices made to manage conflict are important. The advisory committee process that proved so useful in this case was suggested by a constituency group. Other formats were possible. Early in the process, managers should consider utilizing the expertise and resources of people specializing in conflict resolution and negotiation techniques.

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