March 17, 2011

North Brandon Estates
c/o Mr. Brian Davidson
P.O. Box 2165
Brandon, Mississippi 39043

Dear Mr. Davidson:

Enclosed, please find your copy of the Management Plan we recently completed for North Brandon Shores Lake.

North Brandon Shores Lake is presently functioning as a dynamic, slightly bass-crowded fishery. As such, our management recommendations center primarily on reducing the total number of adult predators (largemouth bass and crappie), and improving the conditions for the production of forage through enhancing the pond's fertility level and supplemental feeding:

- Maintain the current fertilization regime.
- Improve the current supplemental feeding regime.
- Largemouth bass (16" and less) should be harvested, up to a total of ~10 pounds per day.
- Bluegill should be harvested, up to a total of ~10 per day.
- Harvest all crappie caught.
- Herbicide application in Summer2011.
- Conduct an electrofishing balance assessment (Annual Evaluation) roughly one year from this date.

Mr. Davidson, we are always available to discuss these recommendations or answer any other questions you might have.

Good fishing,
Scott Kirk
Fisheries Biologist, MS

P.S. Be sure to read about our new Lake & Land Mapping Service toward the end of this report.

Management Plan
For

North Brandon Shores Lake

March 10, 2011

Introduction

As an integral part of the ongoing management program for North Brandon Shores Lake, Southeastern Pond Management conducted a comprehensive evaluation of the 65 acre impoundment on March 10, 2011. A representative sample of the fish community was collected by electrofishing to accurately assess the present state of balance. In addition, a water chemistry test was conducted to determine total alkalinity. The degree of aquatic weed infestation was also recorded. Results of these assessments, plus consultation with Mr. Brian Davidson, provide the basis for this management plan.

The goal of this management plan is to create and maintain a balanced fish community with the potential for trophy largemouth bass in North Brandon Shores Lake. The following evaluation report and management plan details and explains our recommendations with the following goals in mind:

- Create conditions favorable for the consistent production of "quality size" and "trophy size" largemouth bass (Table 1).
- Create conditions favorable for the consistent production of "quality size" bluegill (Table 1).

Table 1.

	LMB	Bluegill
"Quality Size"	16-20"	7-10"
"Trophy Size"	20"+	10"+

- Generally maintain a high level of water quality as well as an aesthetically pleasing environment for aquatic recreation.

It is important to note that quality fishing will not be accomplished "overnight". As you read through this plan, bear in mind that the specific activities we have recommended are not one-time inputs, but rather a collection of ongoing management activities that will establish and maintain long-term quality fishing. Proper pond management, like the management of any natural resource, is an ongoing process. Each management input is recommended individually; however, it should be noted that the *management program* suffers if all activities are not implemented. Feel free to contact us and further discuss management ideas you may have.

Previous evaluations of North Brandon Shores Lake have resulted in the thoughtful outline of management options in an effort to approach your stated management goals. Our latest findings, as well as management recommendations, result from our most recent visit and are contained within the following pages.

Electrofishing equipment was used to collect a fish sample from North Brandon Shores Lake, March 2011.

Pond Assessment

At the time of our visit, total water alkalinity in North Brandon Shores Lake was measured at **25.2** parts per million (ppm). This level of alkalinity is well above the minimum recommended threshold of 20 ppm, and represents conditions suitable for effective fertilization. North Brandon Shores Lake has been fertilized adequately in the recent past.

Bass harvest was reported as limited. This level of harvest has proven inadequate. Harvest, and its importance in structuring fish communities will be discussed in more detail in the Recommended Management Activities section of this report.

During the evaluation, we observed a moderate infestation of smartweed, alligatorweed, and water primrose growing along the margins. Descriptions of these plants may be found in the Aquatic Weed Identification section of this report.

North Brandon Shores Lake appeared to have an moderate plankton bloom at the time of our visit, the result of consistent fertilization.

North Brandon Shores Lake, March 2011.

Fishery Assessment

The fishery in North Brandon Shores Lake was sampled with standard boat-mounted electrofishing equipment. The sample contained largemouth bass, crappie, threadfin shad, bluegill and redear sunfish (shellcracker). Currently, largemouth bass and crappie are functioning as the primary predators in North Brandon Shores Lake. The bluegill, threadfin shad and shellcracker are the prey.

Threadfin shad have become an important component of the forage base in North Brandon Shores Lake. We observed several different size groups, indicating a healthy population. Maintaining a healthy shad population will be important for North Brandon Shores Lake to continue producing quality and trophy size bass.

Largemouth bass ranging in size from 10 to 23 inches in total length were collected in high abundance. The length distribution of largemouth bass (Figure 2) reveals the presence of bass over a wide range of size classes. This represents improvement from the previous year, most likely the result of improved bass harvest.

The average relative weight of adult bass in our most recent sample additionally reflects notable improvement over last year. This year's average relative weight was 103, as compared to last year, 99 (Figure 4).

Largemouth bass 16 inches and smaller represent the primary targets for harvest over the coming months. We harvested 24 pounds of bass during the evaluation.

Bluegill and shellcracker were collected ranging in size from 2 to 10 inches in total length. Figure 3 depicts the length distribution of the bluegill population. Of note, a good number of intermediate (3-5") bluegill and other forage was collected. Further, mature adult bluegill were relatively abundant in the sample.

Overall, we characterize the fish community in North Brandon Shores Lake as slightly bass-crowded. A more detailed explanation of bass-crowded ponds in general, and North Brandon Shores Lake in particular is located in the Current State of Balance section of this report.

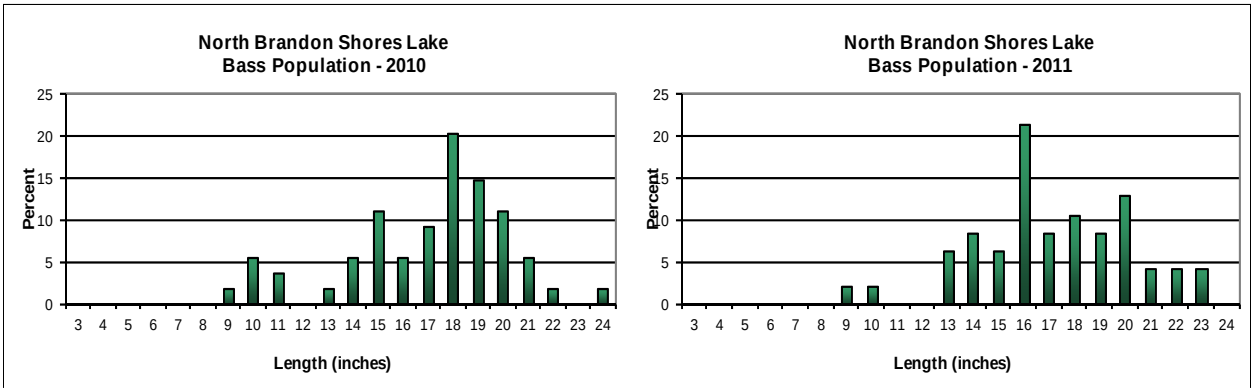

Figure 2. Comparison of the length distribution of bass collected in North Brandon Shores Lake in March 2010 and March 2011.

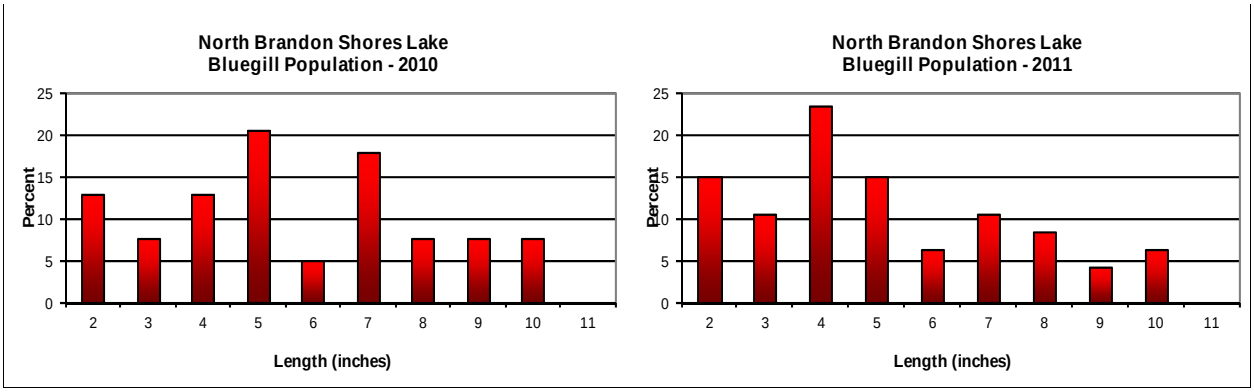

Figure 3. Comparison of the length distribution of bluegill collected from North Brandon Shores Lake in March 2010 and March 2011.

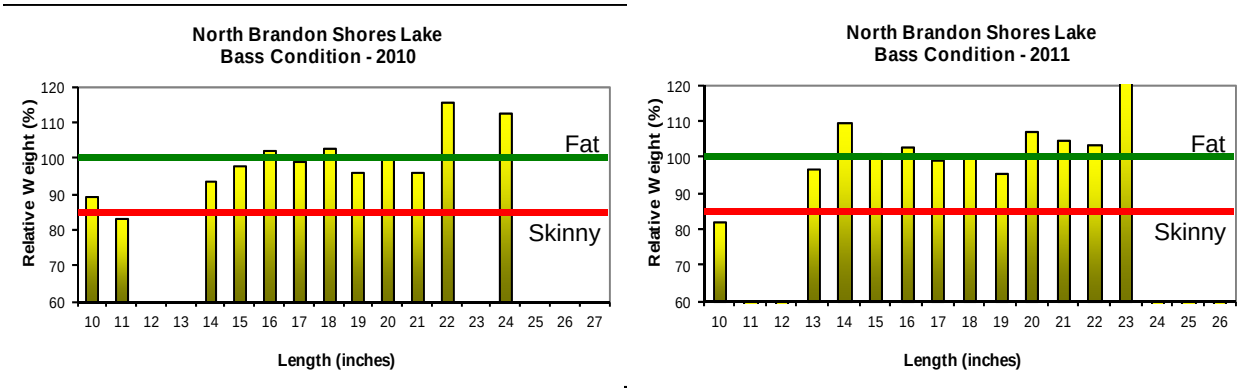

Figure 4. Relative weight distribution of adult largemouth bass collected from North Brandon Shores Lake in March 2010 and March 2011.

Bass-Crowded

Bass-crowded is an imbalanced condition that is relatively common in private ponds and is characterized by large numbers of small, skinny bass, and relatively few but unusually large adult bluegill. In this situation, bass growth is stunted due primarily to a lack of adequate nutrition. The largemouth bass is such an efficient predator that, if not controlled through responsible harvest, it will severely reduce its own food supply. Under these conditions, bass will perform poorly and will never reach their full growth potential.

The presence of intermediate size (3-5") prey is critically important in sport fish ponds. These individuals are the size preferred by the more abundant, younger bass in a typical population. A low relative abundance of intermediate size prey is often an indication of a bass-crowded pond. Under these conditions, bass typically become stunted between 8 and 14 inches. Bass in this size range require an ample supply of 3-5" prey in order to grow past the stunted size and become "quality" and "trophy" adults. When a condition of balance exists, intermediate size prey are among the most abundant segment of the overall fish community. As mentioned previously, our recent electrofishing sample from North Brandon Shores Lake included relatively good numbers of intermediate size bluegill, particularly in the 4 to 5 inch size range.

Under-harvest of bass is most often the cause of the bass-crowded condition. In bass-crowded populations, despite their overabundance and relatively poor condition, the adult bass spawn each year. Due to the presence of an actively reproducing prey population, these juvenile bass are able to grow quite well in their first year. In order to maintain this rate of growth past 8-10 inches however, they require a slightly larger prey item. In bass-crowded ponds, the availability of slightly larger (3-5") prey is limited. As a result, the growth rates of the bass decline dramatically and they begin to demonstrate characteristics of stunting. Recent bass harvest was reported as "limited" in North Brandon Shores Lake.

In a typical fertilized sport fish pond, bass harvest is required in order to prevent overcrowding. The old idea of "throw him back and catch him when he gets bigger" is not a sound approach in small impoundments. If sufficient harvest does not occur, the crowded condition perpetuates itself. This results in a less than quality bass fishery.

Typical bass from a bass-crowded pond.

Finally, competing predator species in the form of crappie p were observed in relatively low numbers in North Brandon Shores Lake. There is no immediate concern that this species will significantly impact the management program. Nevertheless, the potential impact of competing predator species, including crappie, is discussed in the following pages.

Strategies specifically geared toward improving the bass-crowded condition are discussed in the Recommended Management Activities section of this report.

Summary of Management Recommendations

North Brandon Shores Lake is functioning as a slightly bass-crowded system that has a moderate level of fertility. Several management inputs are necessary to restore a state of balance as well as increase the total density of sport fish. The management activities we are recommending for North Brandon Shores Lake will center on reducing the total number of adult predators, introducing supplemental forage, and enhancing the conditions for the production of forage.

To maintain a high density of sport fish as well as help control aquatic vegetation, we recommend **maintaining an intensive fertilization program** in North Brandon Shores Lake. **SportMax® Water Soluble Pond Fertilizer** (10-52-4) should be applied according to the *Standard Pond Fertilization Schedule*.

For North Brandon Shores Lake, **harvest bass 16 inches and smaller** at a rate of **10 pounds per angler per day**. The recommended bass harvest rate and size will likely change over the next few years as the fish community responds to management inputs.

We recommend **limiting bluegill harvest** in North Brandon Shores Lake to a "consumptive" level, meaning ONLY bluegill and shellcracker which are intended for table fare should be removed; the over-harvest of adult bluegill, particularly during the spawning season, may lead to a decrease in the total number of mature, adult bluegill and a corresponding decline in angling catch per unit of effort. **Annual electrofishing evaluations** will help determine if fish harvest recommendations should be adjusted.

We recommend **maintaining an intensive supplemental feeding program** in North Brandon Shores Lake. Fish food should be applied from feeding stations at a rate of at least 5 lbs/feeder/day from March through October.

Aquatic weed control will also be an integral part of the management program for North Brandon Shores Lake. Smartweed, alligatorweed and water primrose has the potential to multiply quickly and should be monitored closely, particularly during the growing season. We feel that the quickest and most efficient way to control aquatic weeds in North Brandon Shores Lake, if they should become a problem in the future, is by herbicide application.

The management activities we recommend over the course of the next twelve months are listed in the following pages. In an effort to assist in the prioritization of these management inputs, we have developed a simple color-coding system. You will note this system in the bottom right-hand corner of the respective Management Recommendations to follow:

LEVEL 1	Highest priority. Generally, require immediate attention.
LEVEL 2	Secondary in importance to Level 1. Directed toward achieving your stated management objectives.
LEVEL 3	Increase enjoyment and/or functionality of your pond but have less impact on the overall management program.

FERTLIZATION ROUTE

ANNUALLY

Current Status: Approved

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

COST: $ 514.00 per application*

* Price subject to change. Cost includes 4 pounds of fertilizer per acre applied by our technicians according to the Standard Pond Fertilization Schedule. Additional fertilizer may be applied to achieve desired results. Cost of additional fertilizer is $1.85 per pound, also subject to change.

MANAGEMENT ACTIVITY:
Initiate fertilization program

LEVEL 1

ANNUAL HARVEST

ANNUALLY

Current Status: Owner Responsibility

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

COST:
Hook and line: N/A

MANAGEMENT ACTIVITY:
Limit Harvest to 10 bass/angler/day (16” inches and less)

LEVEL 1

BG HARVEST

ANNUALLY

Current Status: Owner Responsibility

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

COST: N/A

MANAGEMENT ACTIVITY:
Limit Harvest to 10 bluegill/angler/day

LEVEL 1

ANNUAL HARVEST

ANNUALLY

Current Status: Owner Responsibility

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

COST:
Hook and line: N/A

MANAGEMENT ACTIVITY:
Harvest all crappie caught

LEVEL 1

SUPPLEMENTAL FEEDING

ANNUALLY

Current Status: Owner Responsibility

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Continue feeding program

COST: Cost of Food

LEVEL 1

ANNUAL EVALUATION

SPRING 2012

Current Status: Awaiting Owner Approval

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Annual electrofishing evaluation

COST: $ 675.00*

* This price includes comprehensive written Management Report. An additional mileage charge will be added.

LEVEL 1

HERBICIDE TREATMENT

SUMMER 2011

Current Status: Awaiting Owner Approval

☐ Approved ☐ Declined ☐ Done

Date Approved: _____

Date Done: _____

MANAGEMENT ACTIVITY:
Herbicide treatment to control smartweed, alligator weed and water primrose

COST: $ Variable*

LEVEL 1