

FISH DISTRIBUTION WITHIN THE MONTLIMAR AND MICHAEL BOULEVARD CANALS

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The City of Mobile is growing rapidly. There are numerous canals, ditches, streams, and creeks that can be found throughout the city. These waterbodies are home to a number of species of fish. Rapid urban growth of the area has the potential to be detrimental to fishing environments located within the inner city of Mobile. Two particular canals, the Montlimar Canal and Michael Boulevard Canal, are highly susceptible to environmental change because they lie within the center of sprawling Mobile. The goal of this project was to determine the effects of urbanization on fish life within the Montlimar and Michael Boulevard Canals by identifying the species and composition of fish populations in them. Data was collected on various visits by means of a rod and reel, fifteen foot cane pole, and cast net. Each method of collection was used at all locations selected. Out of all sites visited, various species of brim and bass were the most frequently occurring fish. Additionally, numbers of the invasive species of koi that have been introduced to the waterways, were observed. Future studies performed in similar fashion will help to identify any changes in the distribution of fish in these canals.

Keyword: fish distribution, canal, urbanization

Introduction

The City of Mobile is growing rapidly and urban growth in the area has the potential to greatly affect the fishing environments located within the inner city. The health of the local waterways can be partly interpreted based upon the variety of fish able to survive. The presence of viable fish populations and the types of species found in inner city canals can tell about the quality of the surrounding waterbodies. This is due to the fact that “fish are dependent upon both physical characteristics of their environment and other forms of aquatic life. Therefore, health of the fish community presumably reflects conditions of the entire aquatic community” (Foltz 1982). Previous studies have “demonstrated that fish species diversity was related to habitat diversity” (Foltz 1982). Therefore, the occurrence of urban sprawl has the potential of greatly affecting the fish

populations along these local canals. For instance, invasive species can have great impacts on the viability of native species. The presence of game fish, such as Bluegill, Largemouth Bass, Spotted Bass, and all species of sunfish that are usually found in high numbers, indicate that the stream is healthy enough to sustain viable fish populations. Less healthy streams would typically not have these species present. Studies that document the types of species found are the first step in controlling invasive species. One example of management of invasive species can be found in Flesher's article in the Associated Press where he states that "The U.S. Army Corps of Engineers says it's turning up the juice in an electrical barrier network to better prevent the migration of Asian carp and other species between the Great Lakes and Mississippi river watersheds" (2011). In order to identify a management protocol, identification of the fish located within the area had to first take place. Poor stream health is not indicative of an area's ability to rebound. In areas such as Chicago, which once had very poor stream health and pollution, the fish population is rebounding- as are the numbers of fisherman (Gallum 2003). While these canals are obviously on a much smaller scale, this shows the potential for an area to rebound from poor stream health, if it is managed properly.

Artificial waterways, such as the Michael Boulevard and Montlimar Canals have become increasingly more common and provide an opportunity for an "expanded estuarine habitat available to aquatic biota" (Waltham 2011). This project and future data collection is aimed at gaining a further understanding of the effects of urbanization on fish life in the Montlimar and Michael Boulevard Canals. These two inner city canals are highly susceptible to environmental change due to the fact they are located within the

center of some of the busiest and most urban areas of Mobile.

Research Question

Is the inner city environment of Montlimar and Michael Boulevard Canals healthy enough to sustain viable fish life?

Methods

I fished in several different areas of the Michael Boulevard and Montlimar Canals in an effort to obtain as accurate as possible count of not only the variety of species that were captured but also the number of each species. The areas in which samples were collected include six locations, which can be seen in Figure 1. Location 1 is where the Michael Boulevard Canal intersects with the Montlimar Canal at $30^{\circ}39'43''\text{N}$, $88^{\circ}7'53''\text{W}$. Location 2 can be found in the ditch beside the Montwood Baptist Church off of Azalea Road at $30^{\circ}39'52''\text{N}$, $88^{\circ}9'00''\text{W}$. Location 3 is located in the same stretch of ditch as Location 2, but is more isolated from the rest of the canal. The exact location of this study area was $30^{\circ}39'52''\text{N}$, $88^{\circ}9'06''\text{W}$. Location 4 is located off of Government Boulevard near the I-65 exit behind Eddie's Pawn Shop at $30^{\circ}39'05''\text{N}$, $88^{\circ}7'34''\text{W}$. Additionally, location 5 can be found near the intersection of Halls Mill Road and Azalea Road at $30^{\circ}37'36''\text{N}$, 88° . Location 6 is off of Montlimar Road located behind George's Watersports at $30^{\circ}39'43''\text{N}$, $88^{\circ}7'55''\text{W}$.

At each location, I used a cane pole, rod and reel, and eight foot cast net to catch different species of fish in the canals in an attempt to determine the different types of fish that were located in the specific study areas. Artificial lures and worms were used as bait. Species were counted by hand in a catch-and-release method. The type of fish, photos,

and quantity of fish were recorded in field notes and on camera in order to accurately identify at a later date. Additionally, time of day, temperature, GPS location, cloud cover, and general weather information were recorded. I identified the species of fish that were caught in the specified locations by using the Alabama Outdoors website and consulting with Douglas Darr from the Alabama Wildlife and Freshwater Fisheries Division. .

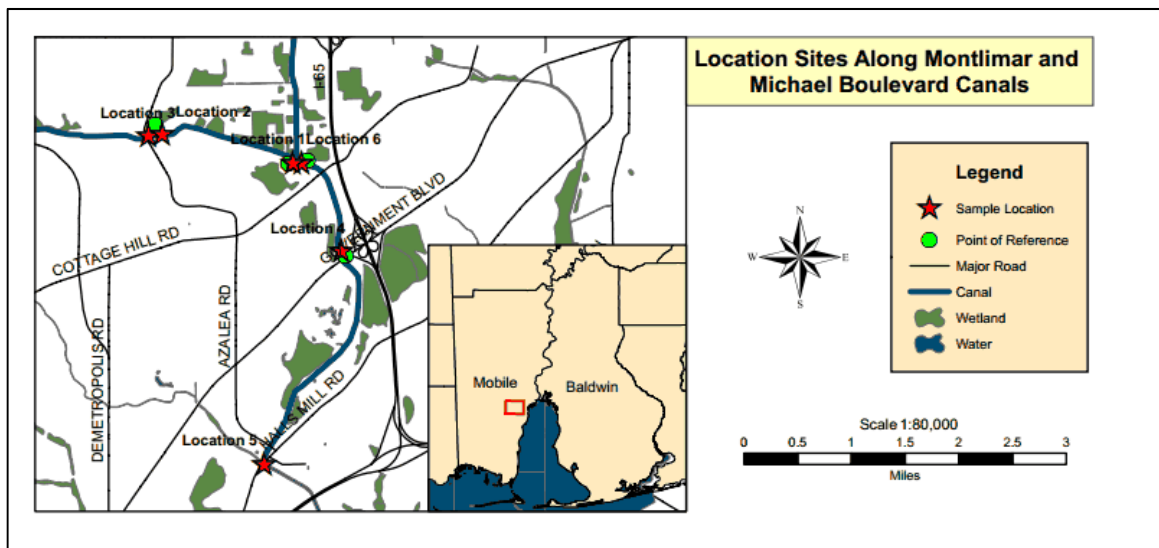


Figure 1- Map showing study sites along the Montlimar and Michael Boulevard Canals

Results

Completion of this project provided information regarding the repeated occurrence of several species of fish commonly found in the Montlimar and Michael Boulevard Canals. Location 1 at the intersection of the Michael Boulevard and Montlimar Boulevard Canals had strong algal growth, particularly under the two nearby bridges. Two fish were caught while four to five fish were observed as can be observed in Table 1. The species that were found in this location were identified as Spotted Bass and Koi. Location 2 yielded a total of eighteen fish that were caught and twenty to thirty fish observed. The path to get to the canal was very steep and consisted of dirt, broken

Table 1- Table showing the type of fish found, number of fish caught and observed, locations, and other notes about the study areas.

Types of Fish at Location	Spotted Bass, Red-breasted Sunfish	Red-breasted Sunfish, Spotted Bass, Largemouth Bass	Red-breasted Sunfish, Spotted Bass, Koi	Koi	Spotted Gar, Largemouth Bass, Bluegill	Red-breasted Sunfish/ Bluegill Hybrid
Number of Fish Caught	2	18	7	0	21	12
Number of Fish Observed	4 - 5	20-30	10 - 15	5	16-21	10 - 20
Geographic Lat/Long	30 39'43"N, 88 7'53"W	30 39'52"N, 88 9'00"W	30 39'52"N, 88 9'06"W	30 39'05"N, 88 7'34"W	30 37'36"N, 88 8'10"W	30 39'43"N, 88 7'55"W
Notes	Strong algae growth. Fished under both nearby bridges with unsuccessful results.	Be careful walking down path, very steep. Beware of snakes. Cross canal to reach sandbar for best fishing. Needs cleaning of trash.	Big rocks, beware of lost lures. How did these fish get here? Several more Koi spotted here.	Beware the homeless people at nearby bridge. Corn, dog food, worms, lures were all unsuccessfully used to try and catch Koi. What is there riddle? Free floating trash prevalent in location.	Nature trail on west side. Other fisherman at this location. Fishing east of bridge seems to be best. Beware of snakes.	Why was there such a large difference in fish with location 1 being so close? Strong Current. Rock bottom. Clear water. Strong current. Worms worked best here.

asphalt, and concrete. A sandbar in the middle of the canal provided the best fishing, but the area does need to be cleaned of trash. The composition of species in this area ranged from Spotted Bass, Largemouth Bass, to Red-breasted Sunfish. Location 3 was located in the same area as Location 2, but was not safely accessible outside of the above fenced in barricade as can be seen in the website associated with this study (www.webmapping.southalabama.edu/spring14/fish/). There were large rocks and chunks of concrete in this deep and separated area. Approximately seven fish were caught in this location, while ten to fifteen were observed. Species consisted of Red-breasted Sunfish, Spotted Bass, and a few very large Koi. Location 4 along the Michael Boulevard and Montlimar Canals yielded no fish caught, however five Koi swimming in a group were observed. Various baits including corn, dog food, worms, and lures were used in an attempt to catch them unsuccessfully. Location 5 yielded the largest number of fish caught at twenty-one. Additionally, somewhere between sixteen and twenty-one fish were observed. This location had other people recreationally fishing in the area and fishing east of the bridge seemed to be most lucrative. The composition of species included Spotted Gar, Red-breasted Sunfish, Large Mouth Bass, and Bluegill. Lastly, location 6, which is found extraordinarily close to location 1, had a mostly rock bottom and strong current. There

were twelve fish caught and approximately ten to twenty fish observed. The species consisted of mostly Red-breasted Sunfish and Bluegill Hybrids. This species identification was completed with the help of Douglas Darr from the Alabama Wildlife and Freshwater Fisheries Division.

Discussion and Conclusion

I studied the distribution of fish within the Michael Boulevard Canal and Montlimar Canal in an effort to document and record inner city fish populations. My main goal was to find out if these local canals are healthy enough to sustain viable fish populations. I fished in various specified locations throughout the canals and identified not only the species located within the canals but also the number of each species that were caught. The collection was done by means of catch-and-release with a cane pole, rod and reel, and cast net. Findings were documented and recorded in an effort to portray the distribution of fish species and capacity of species in these canals. Study areas varied from easily accessible, to cut off and inaccessible by foot. Additionally, some areas had strong current while other study sites had little to none. All areas had decent amounts of vegetation and fish were present in each study site. Overall, results were inconclusive because more sampling needs to be completed to gain an accurate count of the species present in the canals. Based on the number of fish caught and observed at these sites, I would propose that future studies would identify locations 2 and 5 as areas of greater stream health with larger populations of fish.

This data collection combined with future analysis and projects can aide in determining the impacts that growing urban areas have on inner city fish populations.

One of the benefits of compiling information such as what was collected in this report is that it can be used in the future to enact plans to manage the health of these canals. These canals are important to the local community because many families have grown up fishing these canals recreationally. Many canals and streams within Mobile are a source of this recreation. Other areas have endured great changes in their canals as their “life-giving canals are weedy and abandoned...invaded by exotic fish, sucked dry by urban sprawl- and a dozen agencies of government have failed to save one of the wonders of the world” (Booth 2012). In order to prevent such a thing from happening in Mobile, studies such as this can help document change of the inner city habitat for fish and allow people to continue to enjoy this recreational activity.

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