Striped Bass Tagging in Bouctouche River

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INTRODUCTION

In the past decade, climate change has become more and more of a concern. Many freshwater fish species, such as Atlantic salmon, require cooler temperatures to survive and reproduce. As water temperature rises, some fish spawning sites become inaccessible or unsuitable, affecting general fish populations, behavior and adaptation. Another fish species that is fairly common on the East coast of New Brunswick is the Striped Bass (*Morone saxatilis*). This species uses a wide variety of habitats depending on its life stage. While spawning usually occurs in fresh or slightly brackish waters, juveniles and adults use coastal, estuarine and saltwater environments. Spawning commences as water temperatures rise above 10°C and may extend to 19°C in May and June. Young-of-the-year progress downstream and into saltwater over the summer, and spread along the coasts. Striped Bass spend the winter in estuaries or freshwater habitats. Wintering and spawning sites do not necessarily overlap in distribution or occur in the same drainage. In the spring, Striped Bass return to their spawning sites. Although the closest known spawning site is located in the Miramichi River, Striped Bass have been present in the Bouctouche River.

The idea of this study is to insert acoustic tags in 15 Striped Bass and release them, allowing us to monitor their general movement patterns. With this information and information on river health parameters (water temperature in particular), it should be possible to determine if a correlation exists between the two. We also have a water quality monitoring program (separate study) which will give us the necessary information to complete the analysis. This data could help link fish behavior and effects of water quality and/or climate change. The Department of Fisheries and Oceans (DFO) has already tried tagging Striped Bass in the past few years in various parts of New Brunswick but not yet in the south portion of Kent County (where SAA operates). We want to try this method in one of our monitored watersheds, namely the Bouctouche River. This would allow us to see if the fish go up this river and give us an idea of how fish populations respond to changes in river habitats. It is believed this species could also be used as a bio-indicator of temperature changes in local rivers (Bouctouche River, in this case).

METHODOLOGY

Our goal is to put acoustic tags (V16 model,VEMCO) in 15 Striped Bass. To do so, we are working with the Bouctouche First Nation (BFN) and DFO. The fish are to be caught by BFN fishermen via two of their trap nets set up on the river. Once 15 Striped Bass of suitable size are caught, a DFO biologist will make a small incision in the fish and insert the tag inside it. This is done in a way that minimizes potential harm to the fish. They must be big enough so that the tags don’t impede their movement or endanger their lives. Since the tags are fairly big (16 mm diameter, 65 mm length), the selected fish size need to be considered suitable by the DFO biologist. Ideally, the fish would be within the legal catch size (50 to 65 cm). Once the tag is properly inserted and the incision is stitched, the fish left in a recovery basin for several minutes

and then released back into the river. An acoustic receiver (VR2Tx model, VEMCO) is set up at a certain point in the river. Knowing where we release the fish in relation to the receiver, we can determine in which direction the fish is heading (up or down the river). Ultimately, in the future, we want to know if Striped Bass go up the river or not.

RESULTS

There are no conclusive results available at this time. The reason being that we weren't able to catch enough suitable Striped Bass. Only two fish were caught and both were too small to be tagged. They were therefore released without being tagged. The following pictures were taken during the 2016 tagging attempt.

Figure 1: One of the caught Striped Bass being measured

Figure 2: Fish deemed too small by DFO biologist (tag size can be seen in yellow circle)

CONCLUSION

This study depends on many factors that are out of our control, such as the amount and size of the fish caught in the trap nets. As previously stated, we were unable to reach our goal of tagging 15 Striped Bass due to the limited amount of fish caught. Since this is a trial for our association, it is likely that we have overlooked some important aspects in our methodology. One of those aspects would be the time at which we tried to catch the fish. The trap nets were only set up from about mid-October to early November. It is possible that at this time of year, most Striped Bass are already done migrating to their wintering sites. We have been unlucky in 2016 but we will try again in 2017. Since SAA is now equipped with the tags and acoustic receivers, we will try to catch the fish earlier in the season to increase our chances of finding suitable candidates for tagging. During May or June might be a better time to catch them since they tend to spawn during this period in the Miramichi River. We might have better luck catching the bigger, mature fish while they are migrating out of the Bouctouche River to their spawn sites. It is also possible that the trap net locations are not optimal. We will consider moving them if we think a different spot will increase our chances of catching the fish. According to BFN, there seemed to be less fish caught in general compared to previous years. On top of that, they suspect some of the fish caught in their trap nets have been stolen (the day before we tried to tag the fish, a BFN fisherman told us there were about 8 decent-sized Striped Bass in one of the nets but the next morning, only two, smaller fish remained).

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REFERENCES

COSEWIC. 2012. COSEWIC assessment and status report on the Striped Bass *Morone saxatilis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. iv + 79 pp.