



Diving into Aquaculture

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Introduction

For the past year I have been working with the Salem Laboratory at the University of Maryland's Animal and Avian Science Department. This lab focuses on many different methods of identifying optimized methods of selective breeding using specific gene identified in our lab. My work was mainly focused on rainbow trout and identifying how to optimize their muscle growth and color.

Activities:

Extracted DNA from fecal and muscle samples of rainbow trout for further analysis

Learned sterilization techniques when handling samples to ensure no cross contamination that will alter results

Identified primers and conditions best suited for PCR runs through many different trials at different temperature and lengths of time

Worked with the fish to identify pigment change in their muscles to see if the introduction of carotene to their diet will increase the color saturation

Performed many gel electrophoresis on DNA and PCR samples. This was used to both identify the presence of DNA as well as the strength and quality of the sample

Quantified the amount of DNA contained in each samples and used it to normalize samples to have equal DNA concentration

Issues Confronting Site:

One of the most difficult parts of the work is identifying the proper primers and the best way to ensure maximum DNA replication. We had to do many trials with different primers and at different temperature to find the ideal conditions for the highest yield.

Site Information:

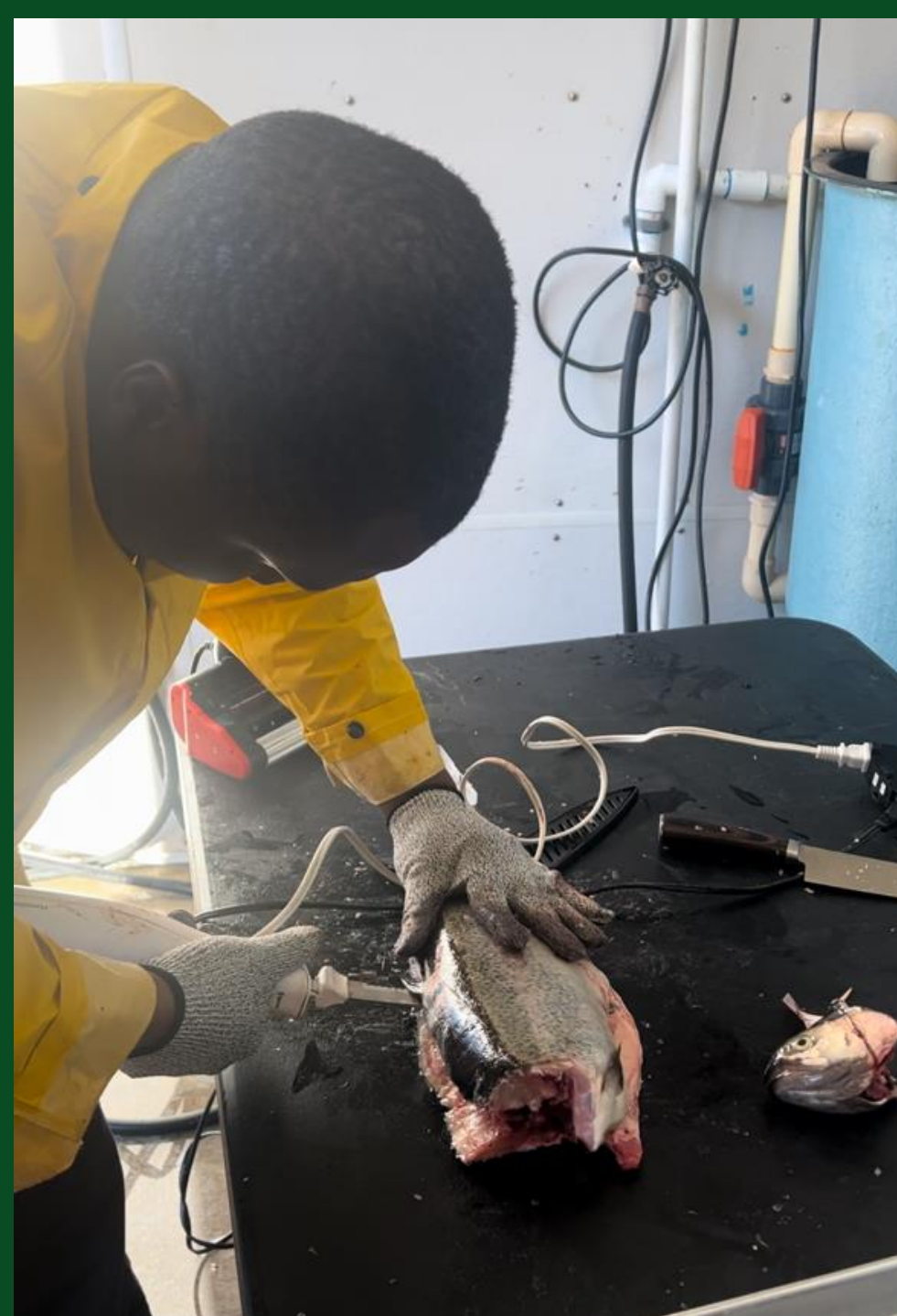
Salem Laboratory

8127 Regents Dr, College Park, MD 20742

Dr. Mohamad Salem

Our goal was to increase the production efficiency and quality of fish used by the aquaculture industry

Ridwan Ahmed, my graduate lab advisor is fileting a rainbow trout in preparation to test its pigmentation



Securing samples before they are shipped to another lab to be sequenced

Aquaculture Research Impacts:

The research being done in this lab plays an important part in the aquaculture landscape. By looking how to improve both the size of the fish grown fish farmers can produce more food with less land space. We also do work in making the fish appear pinker. This helps the fish appeal to consumers more and provide more economic stability for the farmers.

Beyond Fish:

Looking into the future, there is a new project starting in the laboratory focusing on chickens with wooden breast syndrome. Using similar methods of DNA isolation as we used for the Rainbow Trout, we are looking into identifying the genes that cause this disease in hope to pave the way for methods to cure or combat it.

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