

Angela Miner

Fisheries & Wildlife, CFANS, 2008

Mentor: Loren Miller, Fisheries
and Wildlife and Conservation
Biology

Identifying Minnesota game fish species using microsatellite and mitochondrial DNA

Recreational fishing is a large industry in Minnesota and fisheries managers have the important task of maintaining game fish populations in the lakes and rivers. One of the challenges for managers involves identifying the species of young or harvested fish. The species of an egg or small fish can be difficult to determine during monitoring or research. The species of illegally harvested fish can be difficult to verify when only ambiguous fillets or scales are left as evidence. DNA sequencing can readily identify species but can become very costly if many tests are needed. Thus I centered my research on finding species-specific genetic markers that easily identify fish species using less costly DNA tests. These tests were based on the DNA-amplifying technique, polymerase chain reaction. As a source of DNA, I used fresh and frozen fillet and scale samples from thirteen of Minnesota's most common game fish species. I identified a series of three microsatellite DNA markers that could be used in series to distinguish between all of these species. In addition, I identified restriction enzymes that would produce species-specific DNA fingerprints from amplified mitochondrial DNA sequences. This research will aid fisheries managers by saving them time and money in monitoring and enforcement practices.



Poster Number:

Session: