Are Lake Trout in Flathead Lake Morphologically and Genetically Segregated by Depth?

Craig Stafford, Lisa Eby, and Fred Allendorf, University of Montana, 32 Campus Drive Missoula, Montana 59812

Megan McPhee, Flathead Lake Biological Station, University of Montana, 32125 Bio Station Lane, Polson, Montana 59860

We compared muscle lipid content, muscle stable isotope ratios, body morphology, and microsatellite allele frequencies between shallow (0-25 m) and deep caught (>50 m) lake trout (*Salvelinus namaycush*) from Flathead Lake, Montana. We found that lipid content was similar between depth groups. Stable isotopes of N and C varied between depth groups, demonstrating that individual fish exhibit long term depth preferences. Depth groups varied in their morphology. Relative to shallow fish, deep fish had a head more in line with the rest of the body, bigger eye, deeper body, wider skull, longer pectoral fin, and a deeper and shorter caudal peduncle. Microsatellite allele frequencies were similar between depth groups, strongly suggesting gene flow between shallow and deep fish.