

Introduction to Genetic Analyses in Tribal Fisheries Management

Reference: Genetic Guidelines for Fisheries Management – Kapuscinski and Miller, Sea Grant MN

Tuesday - Day #1

08:30 to 10:00

Introduction (SHAWN/PETER):

- CRITFC/HFCES personnel
- Training program schedule
- “house-keeping”

Genetic Principles (pp. 7-48; PETER)

- DNA structure
- Genetic code - transcription & translation
- Chromosomal structure and karyotype
- Mitosis
- Meiosis
- Genotypes & phenotypes
- Qualitative versus quantitative traits

10:30-11:00

Introduction to Lab Exercises (Jon)

- GSI and PBT focus

11:00-12:00

-Brief lab tour (JEFF)

-Lab Exercises (sample inventory, DNA extraction; JEFF)

12:00 to 13:00 – LUNCH break (served “in-house”) with presentation

13:00 to 14:30

Molecular Markers (BEN/SHAWN)

- Allozymes
- Microsatellite markers
- SNPs

Techniques (NATE)

- DNA Extraction
- PCR

Population Genetics (BEN)

- Hardy-Weinberg Equilibrium
- Genetic Diversity (H_e)
- Genetic Distance (F_{st})

14:30 to 15:30

-Lab Exercises (finish extracts, PCR; JEFF)

15:30 to 17:30

Visit of Magic Valley (ClearSprings)

Wednesday - Day #2

08:15 to 9:00

-Lab Exercises (robot load, chip load; JEFF)

9:00 to 11:00

Project Presentations

- Project Overview (15 min): SHAWN
- Data quality and Baselines (20 min): ANDREW
- Genetic Stock ID (20 min): JON
- Parentage/PBT (30 min): MAUREEN
- Discussion/Questions

11:15 to 12:15

-Lab Exercises (scan chip, review raw data; JEFF)

12:15 to 13:30 – LUNCH break (served “in-house”) with presentation

13:30 to 17:00

- SNP data concordance (JEFF)
- Parentage Example (MAUREEN)
- Parentage Exercise Results (MAUREEN)
- GSI Results (JON)
- Wrap-up (PETER/SHAWN)