

Standardizing by Power Data Collection

Purpose: Finding minimum power (voltage and current) levels for effective, successful electrofishing at a sampling site is important for several reasons. Data can be used for establishing an output standardization chart or for determining settings needed for that particular sampling site under the prevailing conditions (water body size, turbidity, conductivity, etc.), and for minimizing fish injury and mortality. *In this exercise, you will use data collected to derive a power, voltage, or current standardization chart.*

Tasks:

1. Choose a waveform (AC, DC, PDC [frequency, duty cycle]) and gear type/electrode configuration
2. Take ambient water conductivity
3. Start at a low voltage setting
4. Begin electrofishing in a representative section of stream or lake
5. Note fish reactions, characterize the sampling as “successful” or “unsuccessful”; describe fish reactions as “escape”, “inhibited swimming”, or “immobilization”
6. If unsuccessful, increase voltage (e.g., by 25 or 50 V) and follow steps #4 and #5 until the lowest voltage or current levels are found that result in successful electrofishing (threshold)
7. Once you have determined candidate threshold settings, increase voltage (e.g., by 25 or 50 V) and note if sampling is the same; if improved, then your initial threshold estimate was too low; if effectiveness appears the same or even declines, then use your original threshold estimate; you may change your threshold values depending upon fish recovery times (i.e., fish welfare)
8. (If successful on the first attempt, go in reverse- reduce voltage (power) and sample again; follow this procedure until successful electrofishing results)
9. If you cannot get to successful electrofishing, change waveform type or PDC attributes (frequency or duty cycle) and start over with low voltage settings
10. Once you obtain successful electrofishing, record:

Ambient water conductivity ($\mu\text{S}/\text{cm}$)

Gear type (e.g., backpack, model, and electrode type and dimensions)

Voltage setting

Voltage output on meter (if available)

Current output on meter (if available)

Waveform type and attributes if PDC

Fish capture-prone response (escape, inhibited swimming, immobilization)

Water body type and size (if a stream, at least average width, and if time allows, average depth)