

Sampling Techniques

- I. General types of sampling gear
 - A. Passive - little effort involved; set gear, leave, retrieve
 - B. Active - actively sample fish with the gear; high effort involved
- II. Passive gear
 - A. Pros and cons
 - 1. Pros
 - a. Simple to use
 - b. Easy to standardize
 - c. Requires little effort to deploy
 - 2. Cons
 - a. No real confirmation that CPUE and density are related
 - b. Fish can escape gear
 - c. Fish can avoid gear
 - B. Types
 - 1. Entanglement
 - a. Gill nets/trammel nets
 - (1) provide direction and spatial information
 - (2) size and species selective
 - (3) high mortality may occur
 - 2. Entrapment
 - a. Hoop nets - no wings or leads
 - (1) riverine, often baited
 - (2) selects fish that seek cover
 - b. Fyke nets (often called trap nets)
 - (1) often include leads and wings
 - (2) modified for lentic systems
 - (3) selective for active, moving fish
 - c. Pot gears
 - (1) many types, lobster traps, minnow traps, etc.
 - (2) selects for bottom-dwelling fish
 - (3) often baited
 - 3. Angling gears - highly selective, not used by researchers
 - a. Trotline - inland fisheries; selects bottom fish
 - b. Longline- marine fisheries; bottom or open water
- III. Active gear
 - A. Pros and cons
 - 1. Pros
 - a. Sweep a know volume of water
 - b. Highly mobile effort - select habitat types
 - c. Short sample periods - results in greater replication
 - 2. Cons
 - a. More work
 - b. Tough to standardize effort
 - c. Dangerous at times
 - B. Dragged
 - 1. Trawls - either bottom or midwater
 - a. Otter doors are often used

- b. Selectivity depends on trawl mesh size, speed, depth
 - 2. Dredges
 - a. Dig into substrate with claws
 - b. Selective for demersal fish
 - C. Surrounding
 - 1. Beach seine
 - a. Inshore fish
 - b. Small fish are selected
 - 2. Purse seine
 - a. Encircle the fish
 - b. Selective for pelagic fish
 - D. Other active gear types
 - 1. Push nets
 - 2. Pop nets
 - 3. Cast nets
 - 4. Angling
 - 5. Spears
 - 6. Detonating
 - 7. Electrofishing
- IV. Sampling considerations
 - A. Weigh the effectiveness of gear versus its bias (i.e., tendency to over- or under-estimate the true pattern)
 - B. What potential problems could arise?
 - 1. Obstructions
 - 2. Weather
 - 3. Size and depth of lake
 - 4. Current
 - C. Often best to combine the data from multiple sampling types, recognizing the strengths and weaknesses of each