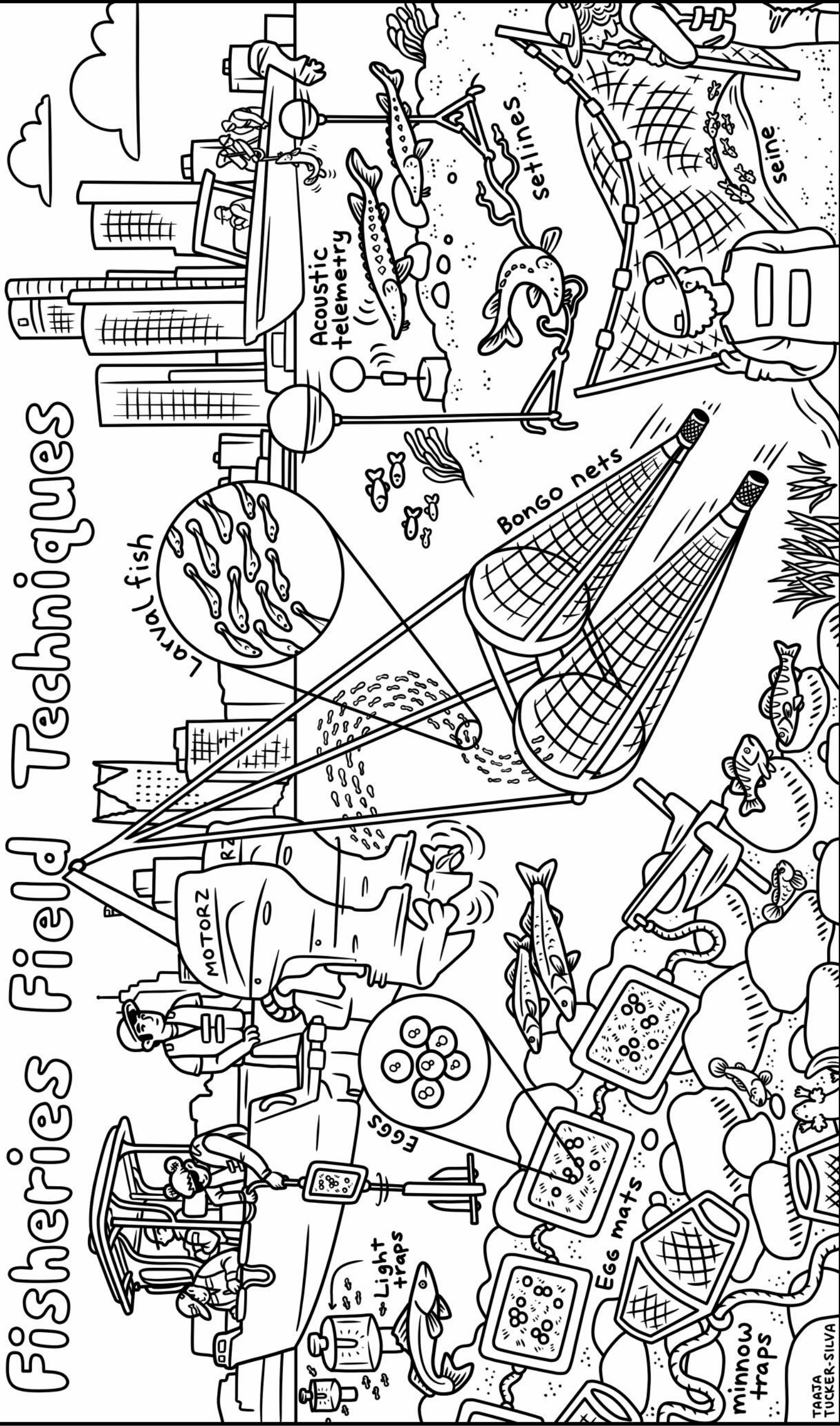
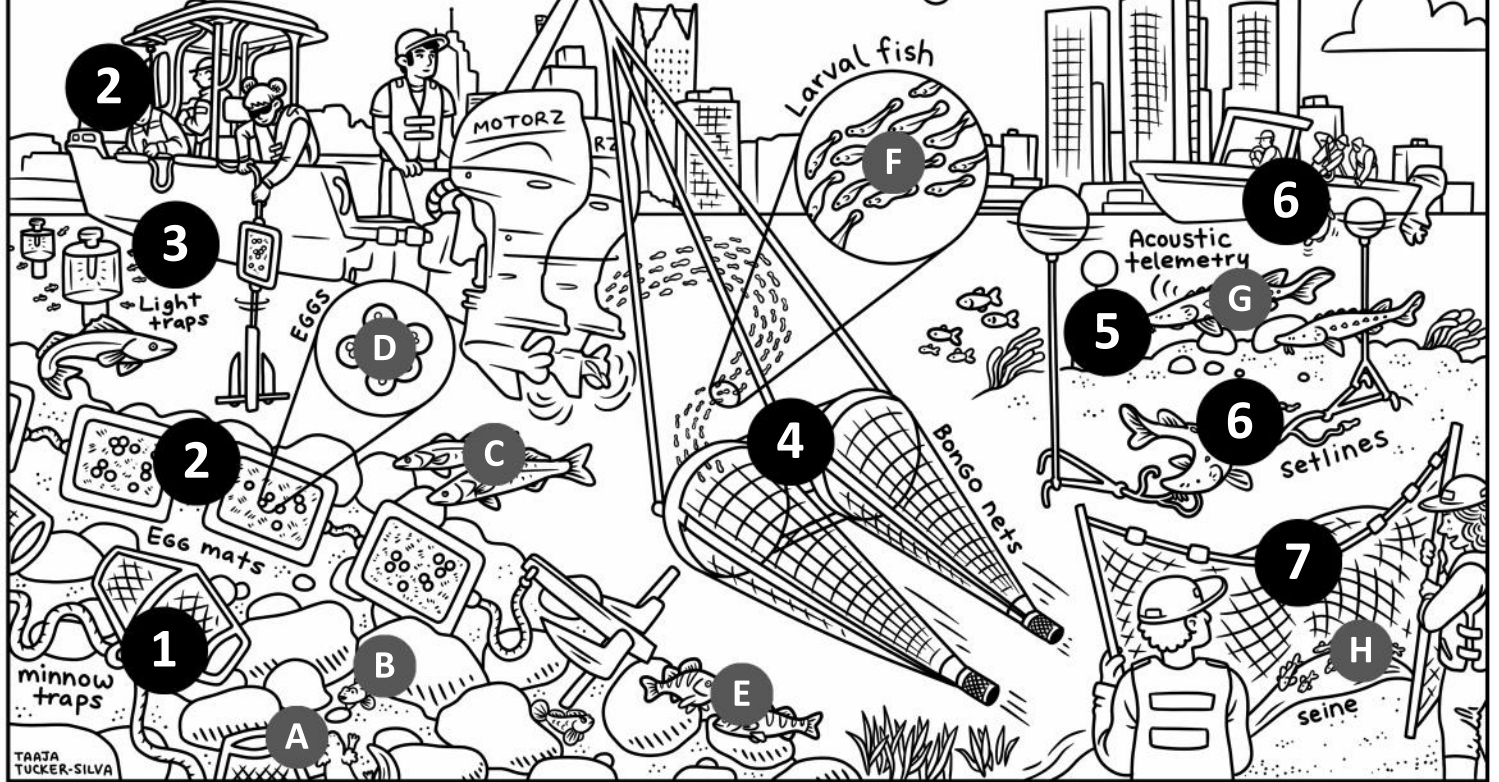


# Fisheries Field Techniques



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Fisheries researchers and managers catch fish for many reasons: to identify them, to count them, to measure them, or to track them through the water. The type of fishing gear used depends on the fish's habitat, size, and/or habits: some fishing gear works better for some areas of the river or lake, but not for others. Some fishing gears also require more time, effort, or man power than others, or have different implications for how data produced from their catches can be used. Lots of different kinds of fishing gear are used around the world, and this coloring sheet shows just a sample of some of the fishing gears that are used in the St. Clair-Detroit River System in the Great Lakes.

**1. Minnow traps** are cylindrical traps with metallic mesh around the outside. Bait is placed inside the trap to lure fish or other target species. Both sides of the trap have a cone-shaped hole facing inward, so that when fish swim in to find the bait, they have a much harder time getting back out. Minnow traps are weighted to the bottom of the water column with an anchor. When they are pulled back up, they can be opened by unclasping the middle section and splitting the trap in two, allowing fish to be removed. Minnow traps work well for capturing benthic (on the lake or river bottom) species that may be hard to capture with other techniques. These traps are a form of passive gear, which means that they are set for a designated period of time and later checked for presence of fish.

**2. Egg mats** are used to catch eggs released by broadcast spawning (releasing eggs over a wide area) fish such as lake sturgeon or walleye. The mat is made of coarse material such as furnace filters and mats are connected together by line and weighted to the bottom of the water column over possible spawning substrate (e.g., rocks). Mats are pulled out of the water and eggs are collected with forceps. Eggs collected this way can be hatched in a lab to confirm species identifications. Egg mats are passive gear good for determining whether fish are using a spawning area (presence / absence).

**3. Light traps** are floating traps with a light (typically a glow stick) in the middle that are used at night to attract small or age-0 fish. Fish swim toward the light and are caught in the curved plastic containers surrounding it. When the light trap is pulled from the water, the small fish are collected in some form of mesh-lined bottom (either a flat bottom of the trap with holes on the side or a collection cup). Light traps are passive gear that can be used to assess species diversity and catch per unit effort.

**4. Bongo nets** are nets made of fine mesh (e.g., 0.5 mm or less) that are pulled through the water by a boat to collect larval fish. The depth of the bongo net tow can be adjusted to sample any part of the water column. The fish are caught at the end of the net in a collection cup. Bongo nets can be used to assess species diversity and catch per unit effort. Bongo nets are active gear, meaning that they are actively collecting fish (there is no waiting around).

**5. Acoustic telemetry** can be used to track the locations of fish throughout a waterbody. Fish are captured (using any non-lethal method) and tagged with a small transmitter, which can either be implanted internally with minor surgery or attached to the outside of the fish. The fish is then released and resumes its normal activities. The fish's transmitter emits signals, or 'pings,' that are picked up by receivers placed underwater at different locations in the waterbody. When a receiver hears a ping, it records the ID of the transmitter and time and date, which can be used to determine which fish swam by which receiver and when. Knowing where fish move can be helpful for understanding home ranges, feeding or spawning habitat preferences, seasonal patterns, activity levels, and much more.

**6. Setlines** are a series of shorter fishing lines with baited hooks attached to a longer line and placed underwater. These are passive gear used to capture larger fish. After a specified amount of time the lines are pulled up and checked for fish. This gear is helpful for collecting fish to tag (for population tracking or for acoustic telemetry), obtain scales (for aging), or to obtain fish health information (body length or mass measurements).

**7. Seines** are long mesh nets that are actively pulled through the water (typically with one person on each end) to capture fish. Varying sizes of mesh can be used depending on the size of fish desired. Seines are typically walked through the water parallel to the shore for a specified distance and then the ends are pulled together toward the shore to capture fish. Seines are good for catching nearshore fish or juvenile fish.

## Featured species

- A. Mudpuppy
- B. Round goby (invasive in the Great Lakes)
- C. Walleye
- D. Fish eggs
- E. Yellow perch
- F. Larval fish
- G. Lake sturgeon
- H. Minnows