Visual observations of fishes

June 27, 2014

Visual observation methods are used for:

- Broad scale inventories of fish distribution and abundance
- Evaluation of habitat use
- Estimates and population size and structure
- Censes of spawning nests
- Detailed observations of fish **behavior**

Visual observation methods

- 3 types:
  - Direct underwater

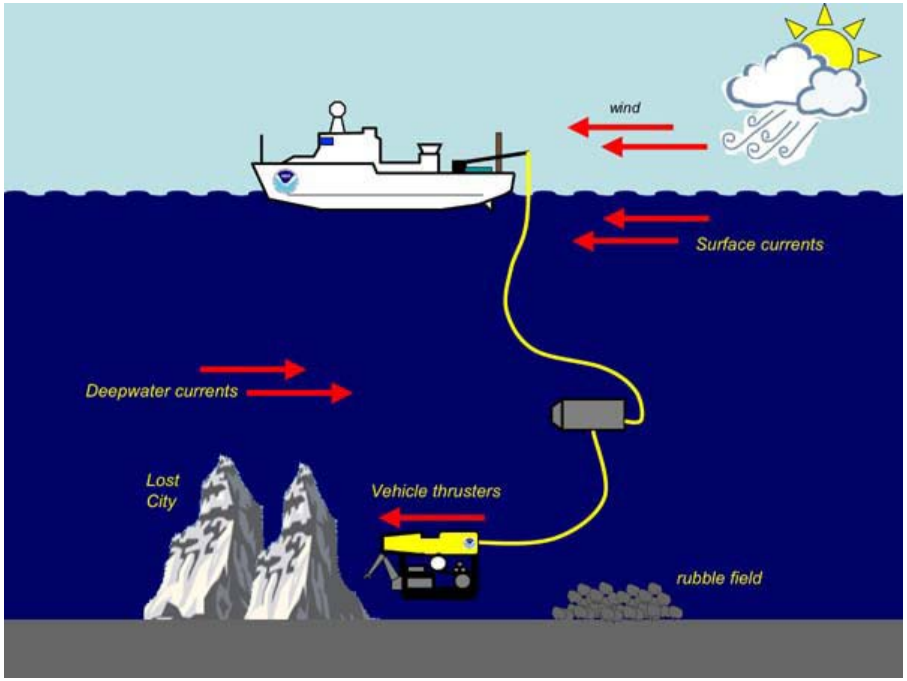
Me!

Visual observation methods

- 3 types:
  - Surface observation

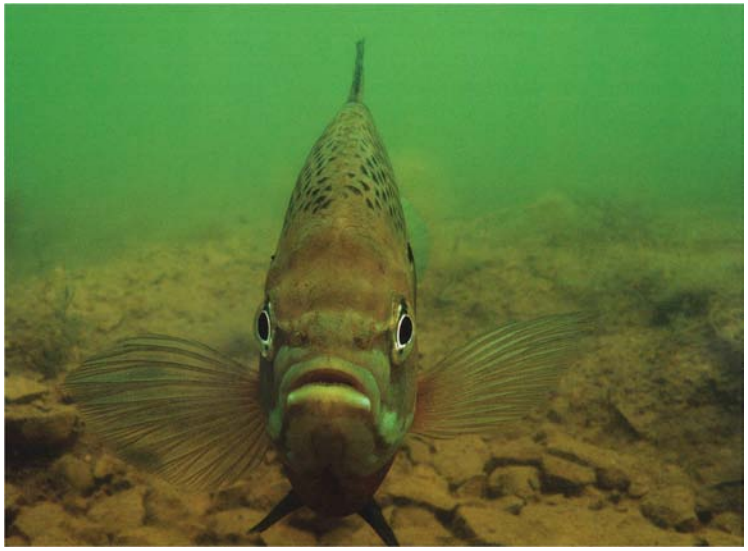
Visual observation methods

- 3 types:
  - Remote methods



Visual observation methods

- Are less destructive and less stressful for fish
  - Threatened or endangered species, sensitive species
- Allow for detailed observations of behavior



Bluegill nesting behavior

- **Parental** males (age ~ 7) excavate circular nests in gravel or sand

Male bluegill with spawning coloration
Photo by Kristiina Hurme

Bluegills nest in colonies

Bluegill nesting behavior

- **Sneaker** males (age 2-3) hide-out and dart into nest as females lay eggs to steal fertilization

- **Satellite** males (age 4-5) are the same size as mature females and mislead parental males
  - Take on lighter female color and behavior
  - Also sneak fertilization when true female lays eggs

An **ethogram** is a list of behaviors

Table 1. Ethogram of sunfish behaviors tallied

Behavior	Description
Display	Male extends all fins and orients toward a perceived threat
Chase	Male pursues another fish
Rim circling	Male swims in circles about the rim of the nest
Fanning	Male hovers over substrate and uses pectoral fins to fan eggs
Spawning	Male and female engage in releasing eggs and milt
Tail sweeping	Male uses tail to excavate or clean out the nest
Substrate biting	Male bites at the substrate
Float-up	Male floats up in the water column and remains suspended
Abandonment	Male leaves the nest for reasons other than a chase

Betolli and Clark 1992

Develop your own ethogram

- Observe one nest for 20 minutes total
- List and describe *ALL* behaviors
  - Take detailed notes
- **Compare** with your partner to create ethogram in your notebook
- Return to a nest if there is time and refine your ethogram
- Also note:
  - Aggressive displays towards YOU: ***opercular flaring***
  - **Sneaker males present on nest?**
  - **Satellite males present on nest?**
  - **Presence of eggs**
  - **Other species nests nearby?**