



Chapter 6



Passive Capture Techniques



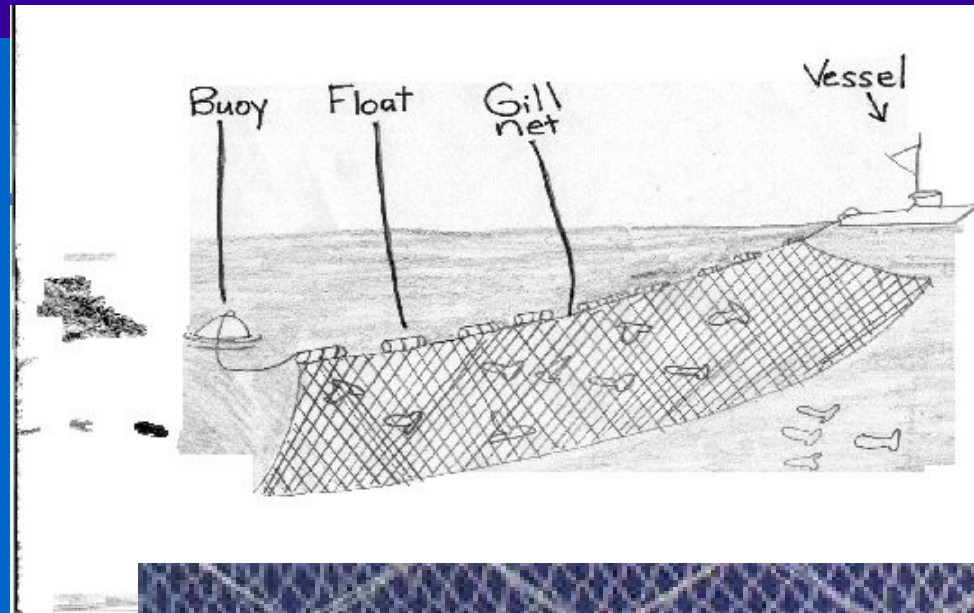
Passive Capture Techniques

- Fish caught by
 - Entanglement
 - Entrapment
 - Angling gears
- Gear is not moved through the water



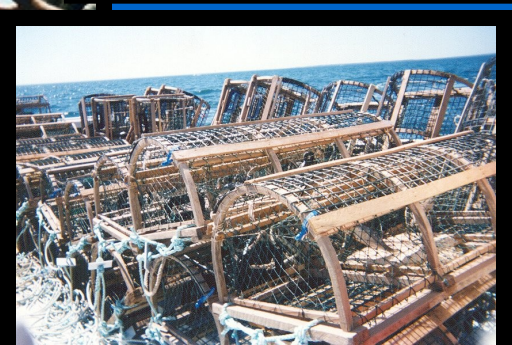
Entangling devices

- Fish are snared or tangled in fabric or mesh
- Examples
 - Gill nets
 - Trammel nets



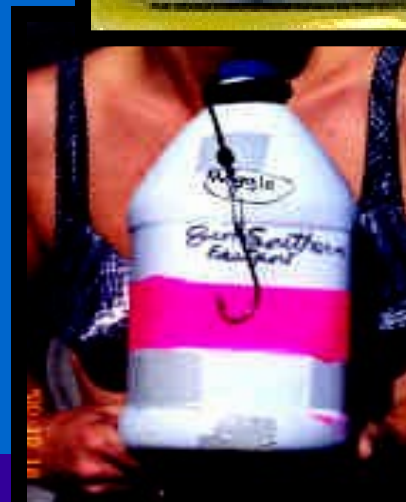
Entrapment devices

- Capture fish that go through small openings in gear
- May be more than one opening
- Fish can't find their way out
- Examples
 - Hoop nets
 - Trap Nets
 - Lobster Pots



Angling devices

- Use baited hooks on lines
- May be unattended
- Examples
 - Trot lines
 - Long lines
 - Jugs and yo-yos

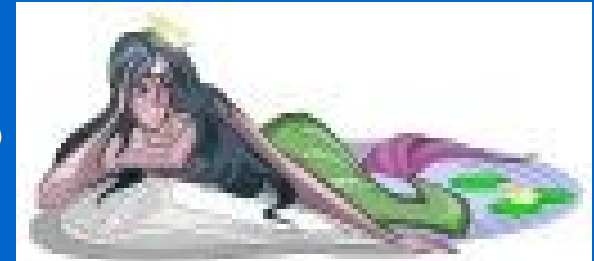


Problems with passive gear

- Gear selectivity - bias for or against certain species, sizes or sexes of fish.



or



- Example - trap nets catch crappie, but usually not largemouth bass



Problems with passive gear

- Gear efficiency - number of target animals collected for a given amount of effort expended



- Example - gill nets catch fewer crappie per net night than trap nets

Advantages of Passive Gear

- Simple design and construction
- No mechanical assistance (except boat)

- Same gear each year ... $CPE \sim =$
Population Abundance



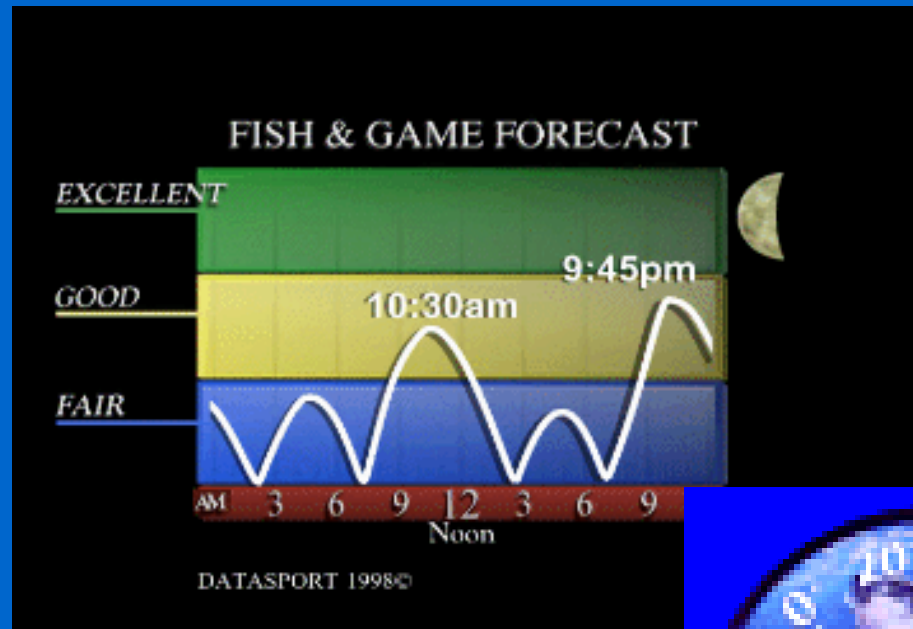
Disadvantages of Passive Gear

- Gear selectivity influences
 - Encounter
 - Caught
 - Retained



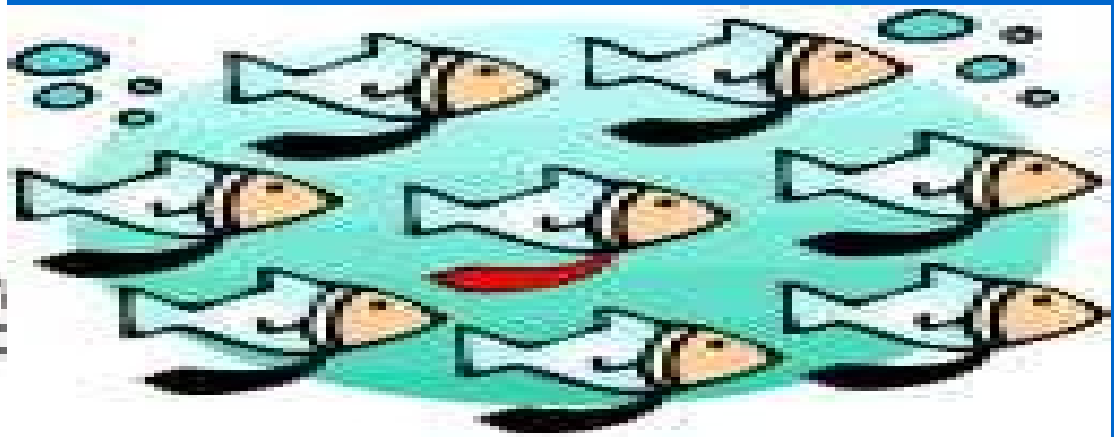
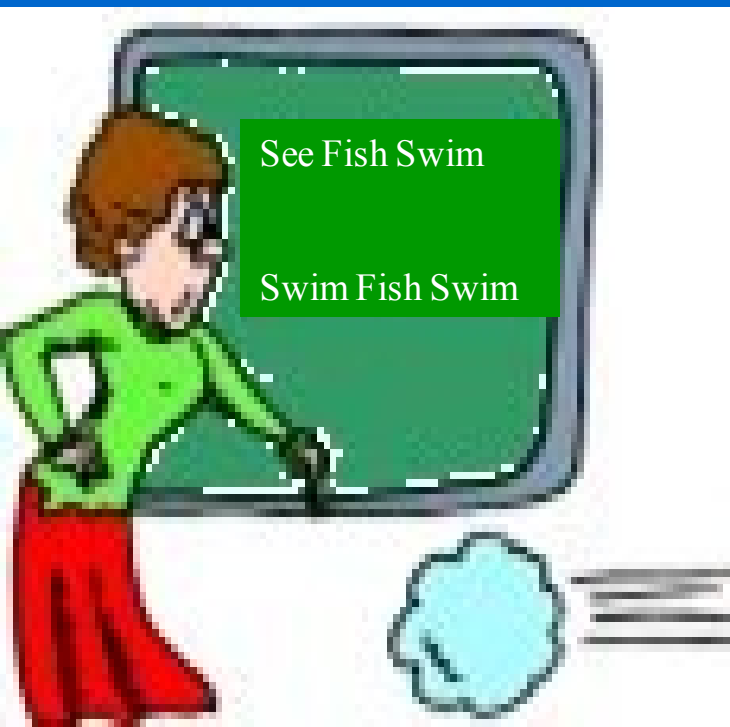
Capture efficiency influences

- Season
- Turbidity
- Current
- Time of day
- Water Temperature



Other Considerations

- Animal Behavior
- Movement
- Schooling
- Fish morphology



Gill Nets - Fish caught by...

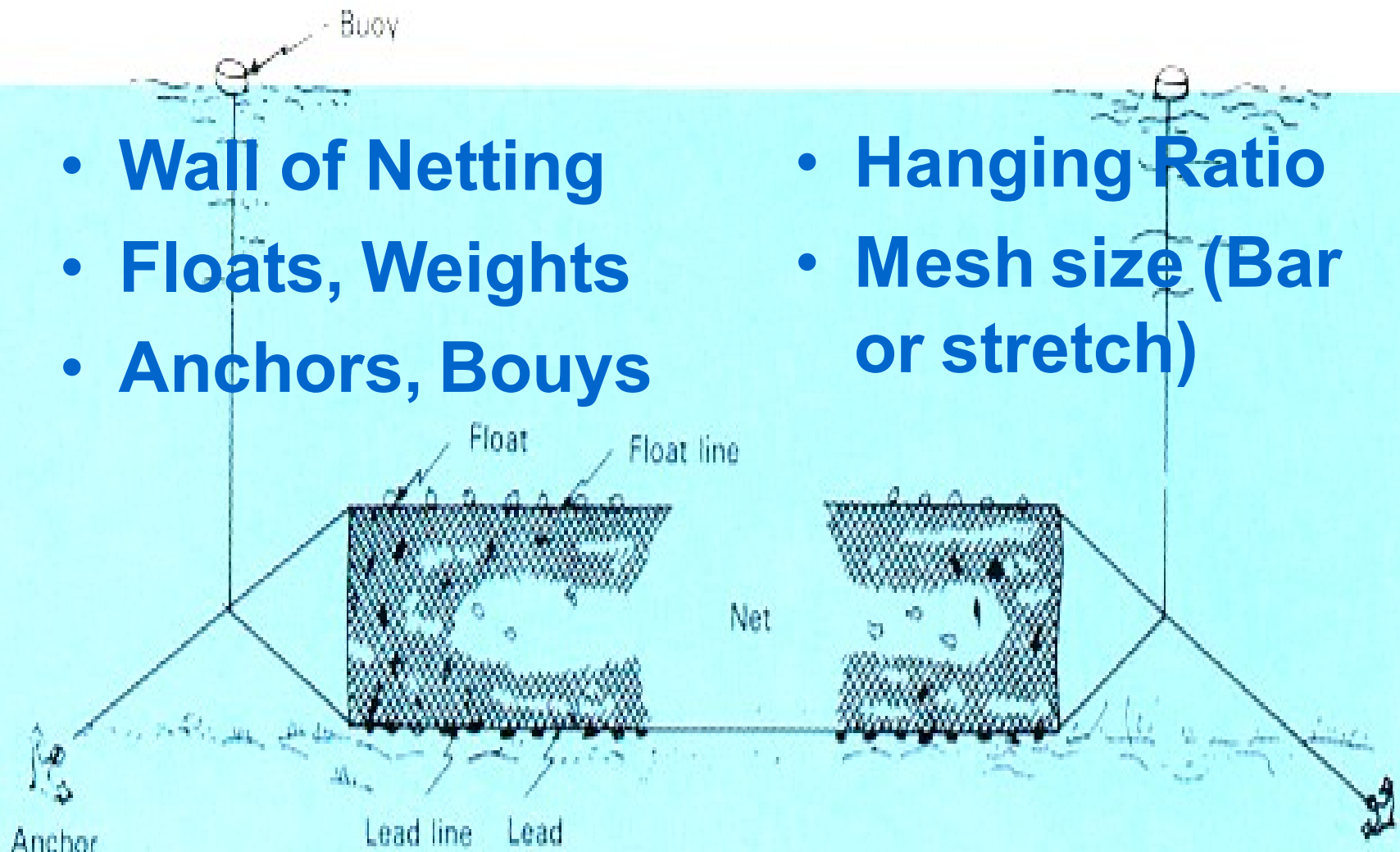


- **Wedged**
- **Gilled**
- **Tangled**

Gill Nets - Construction

- Wall of Netting
- Floats, Weights
- Anchors, Bouys

- Hanging Ratio
- Mesh size (Bar or stretch)

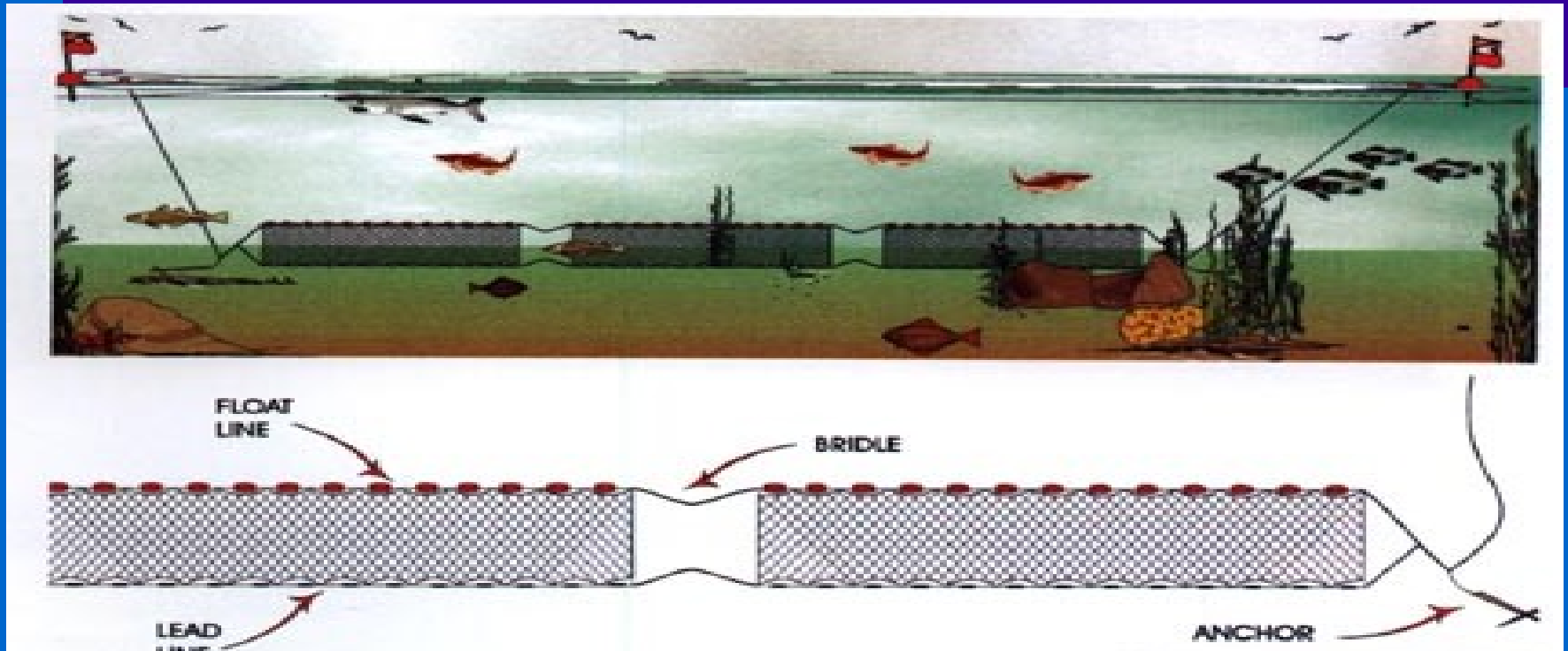


Gill Nets - Materials

- Net
- Cotton
 - Linen
 - Nylon
 - Monofilament
- Floats
 - Wood
 - Cork
 - Plastic
- Lead weights on bottom



Gill Nets - Set Procedure



- **Deployment**

- Drop anchor, play out untangled net, drop anchor

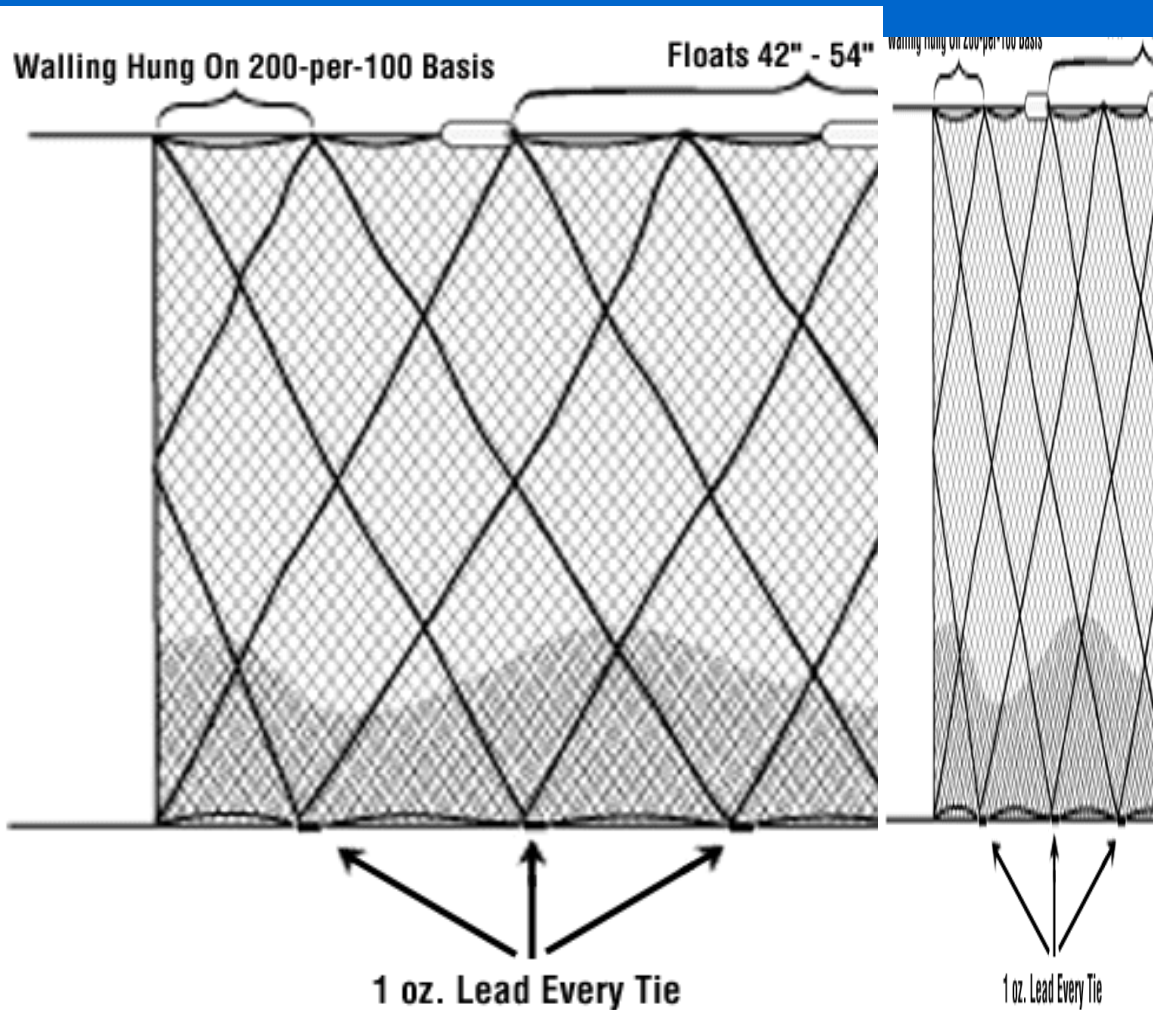
- **Retrieval**

- Start from downwind, remove fish, into tub in coils

Gill Nets - Types of Sets

- **Standard** - anchored on bottom like a fence
- **Midwater** - suspended mid-depth by lines
- **Surface** - strong floats
- **Vertical** - for determining vertical distribution (windowshade)
- **Drift** - not anchored

Gill Nets - Biases (cont.)

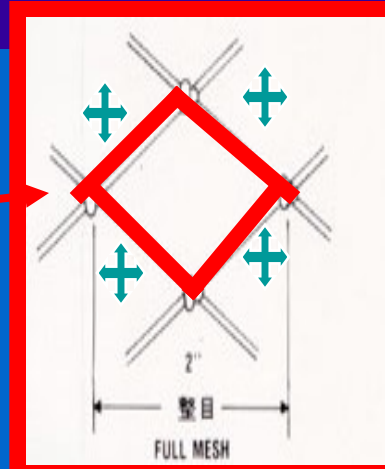


- Mesh size, elasticity, hanging ratio, strength, visibility
- Movement of fish
- Duration (soak-time)

Gill Nets - Biases

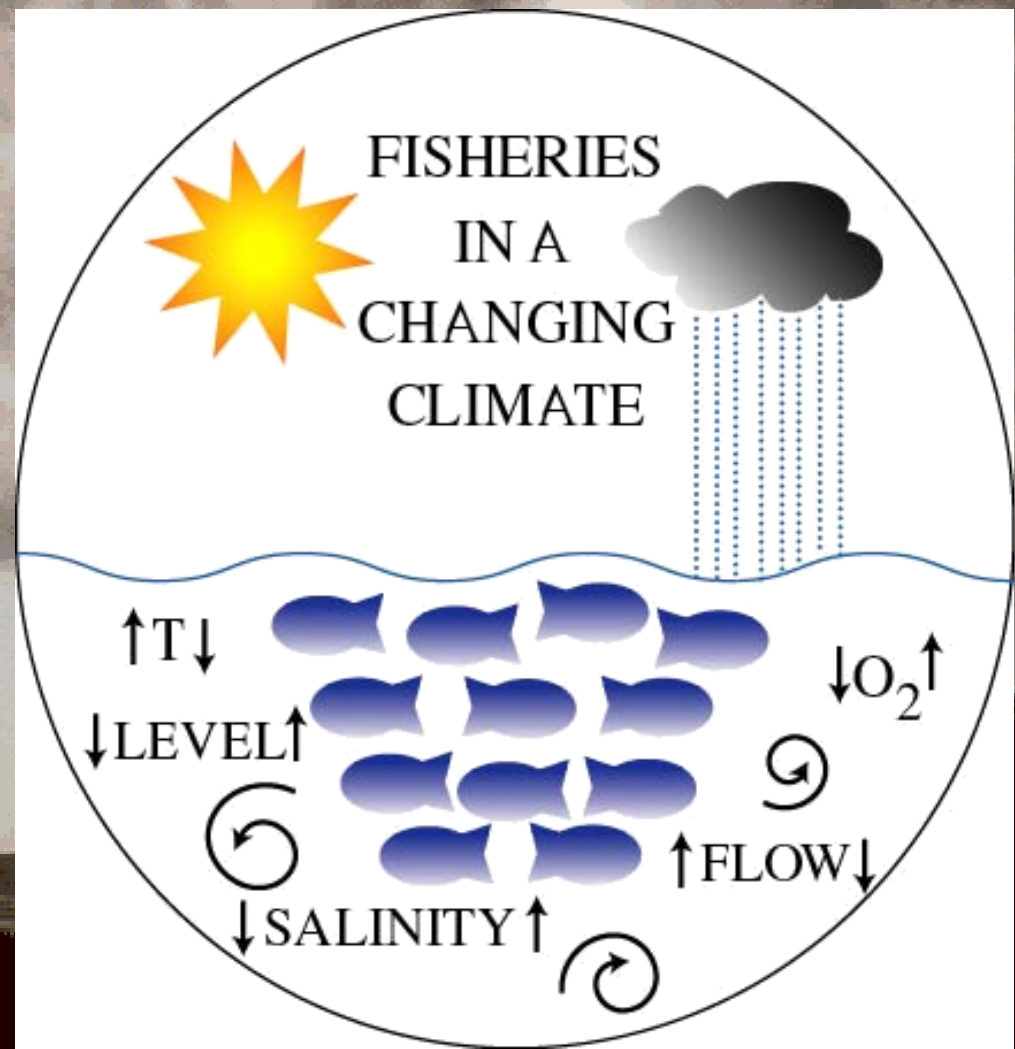
- Optimal girth ...
• 1.25 x mesh
perimeter
- Few smaller or
larger fish than
optimal

=1.25 x



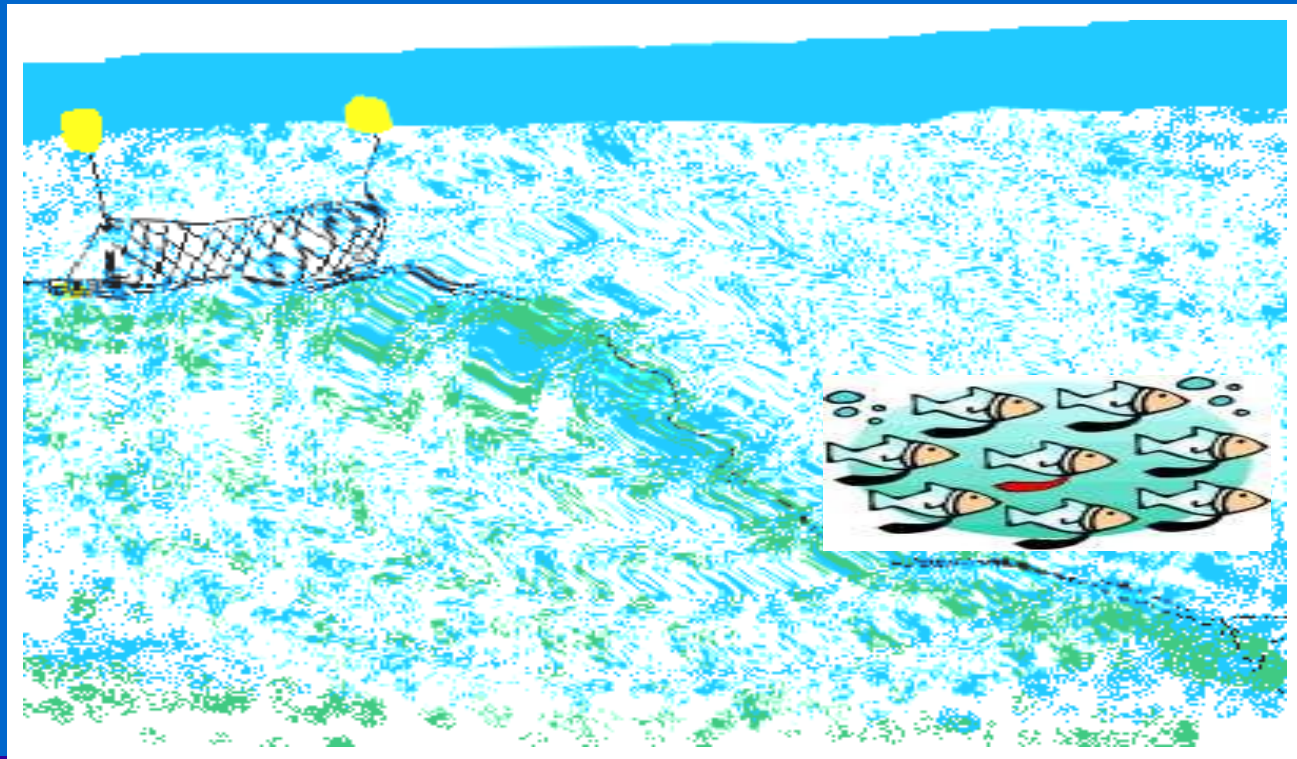
Movement of Fish

- Season
- Weather fronts
- Currents
- Water temperature



Movement of Fish

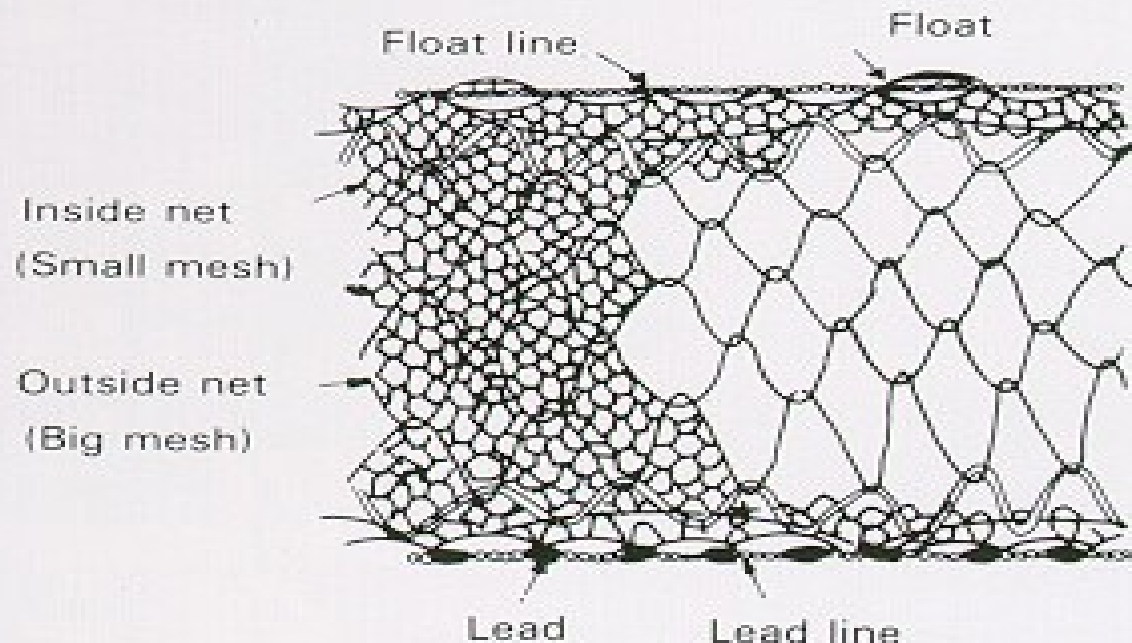
- Thermocline location
- Water depth
- Fluctuations in water level
- Turbidity



Trammel Nets - Construction (cont.)

- Three panels of netting
 - small mesh sandwiched between two large mesh
- Float line
- Lead line
- Fish in a pocket made of small mesh poked through large

Trammel Net



Trammel Nets - Material

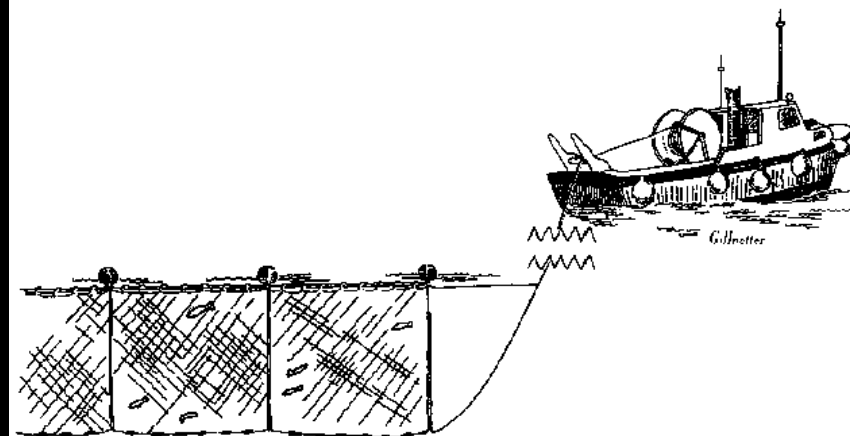
- Cotton or nylon
- 2-m deep
- 250-mm bar
- 25-mm bar

Trammel Nets - Sets



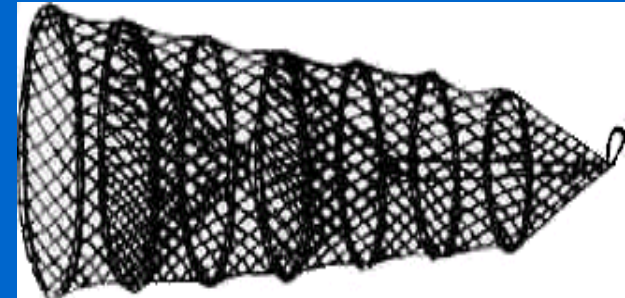
- Same as gill nets
- Standard sets
- Floating sets

- Common in commercial fisheries



Hoop Nets - Construction

- Cylindrical or conical
- Frames covered by mesh
- Square or finger throat
- Cod end
- Anchor
- Bouys



Hoop Nets - Material



- Hoops - wood, plastic, fiberglass, steel
- 0.5 to 3m diameter
- Cotton or nylon mesh
- 10 to 100mm bar mesh

Hoop Nets - Sets

- Riverine habitats - good in strong currents
- Anchor upstream, stretch out, mouth downstream
- Baits - cheese, soybean cakes, chicken livers



Hoop Nets - Biases

- Hoop size
- Mesh size
- Escape rates
- Season, temperature, current, turbidity, habitat type



Fyke and Trap Nets - Construction

- 1-3 wings or leaders (guide fish)
- enclosure with throat
- float
- anchor



Fyke and Trap Nets - Materials

- Hoops or rectangular frames - metal
- 0.5 to 2m diameter
- Cotton or nylon mesh
- 10 to 100mm bar mesh



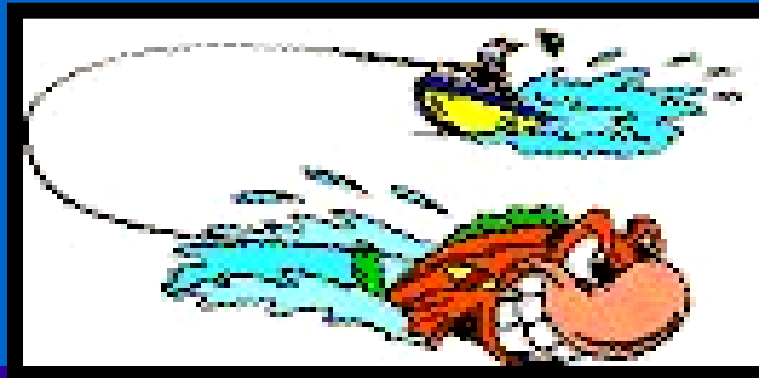
Fyke and Trap Nets - Sets

- Lakes and reservoirs
- Perpendicular to shore
- Leader onshore, anchor away
- Floating trap nets



Fyke and Trap Nets - Biases

- Species and size selectivity - good for crappie
- Live releases - mostly larger sport fish



Pot Gears - Construction

- Rigid traps with throats
- Widely variable for different species
- Box or cylinder with conical funnel
- Usually with door for easy removal

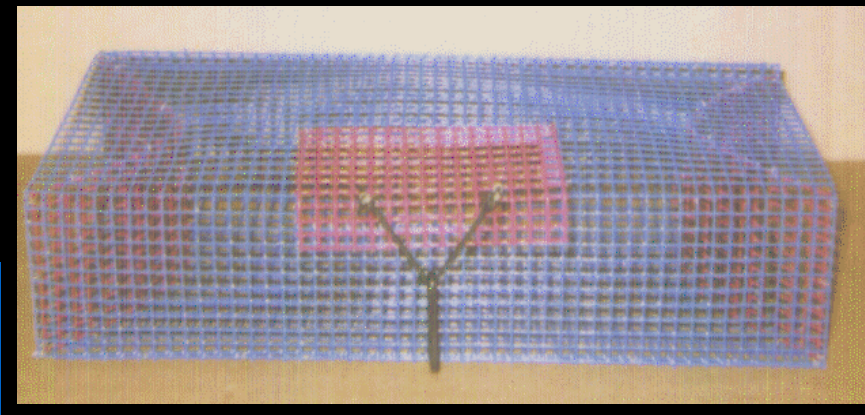


Pot Gears - Materials



- Wood
- Metal

- Partial mesh



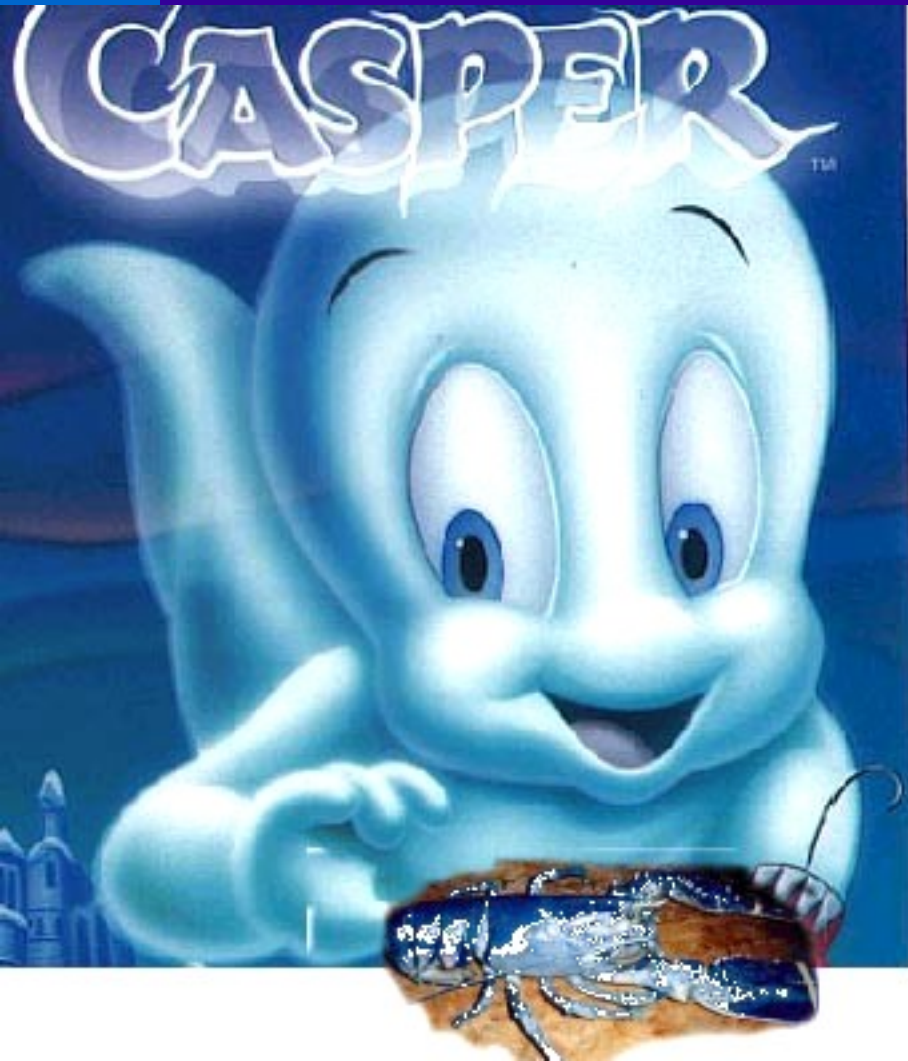
- Plastic

Pot Gears - Sets

- Usually over the side of boat, with float attached
- Suspended in midwater - minnow traps



Pot Gears - Biases



Same as other gear
Ghost fishing
Overcrowded traps



Angling Gear



Trot Line
(c) 98 Woodyz Cat House

- Trot lines

- Floats, lines, drop hooks, weights

– Mostly warm water inland fisheries



Angling Gear

- **Long lines**
 - Floats, lines drop hooks
 - Mostly oceanic fisheries (miles/longline)

