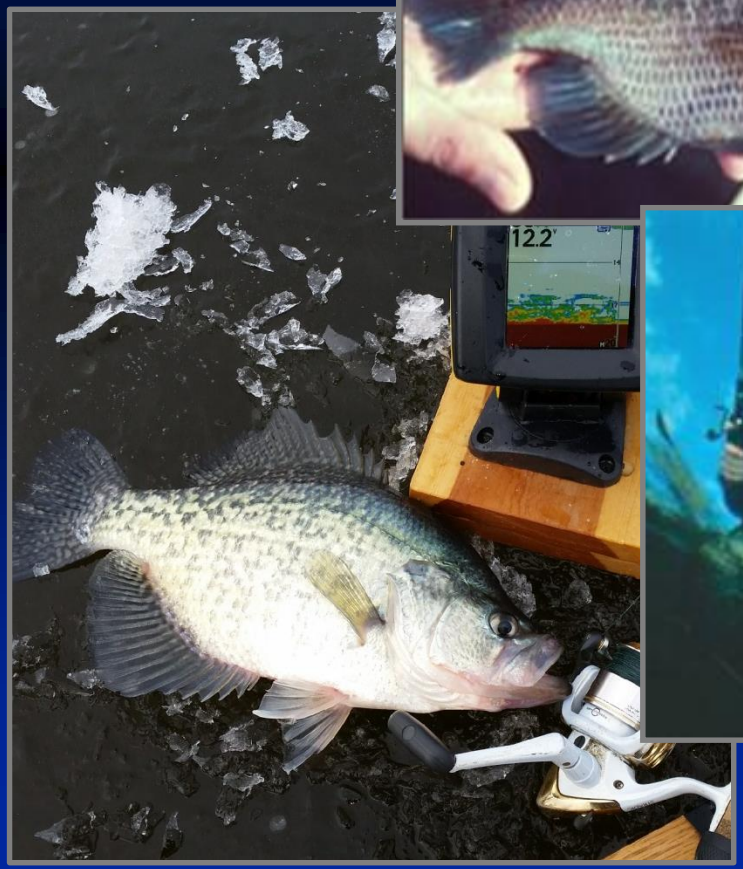
Anglers Want Quality Fishing!

Size & Numbers



Like Anglers, Individual Lakes and Fish Populations are Usually Unique!

Fishing Regulations Should be Thought of Like a Rx to FIX a Problem……Each Lake and Fish Population Needs to be Treated "Uniquely"

(ie. on their own merits)

or

Fishing is an Important Industry!

-1+ million anglers in Illinois

- Illinois anglers spend
  ~ $1 billion+/yr.

  - ~ $400 million is directly trip related

  - + 50% is spent outside Illinois

Keep more of this in Illinois by improving fishing quality

Methods To Improve Angling Quality?

Build Lakes

Stock Fish

Develop Habitat

Add Fish Attractors

Fishing Regulations

What Is A Fishing Regulation?

- License and/or Permit
- Gear Restriction
- Creel (Number or Bag) Limit
- Length (Size) Limit
- Closed Period (Season, Day, Hour)
- Refuge

The Practical Application of Fishing Regulations

Michael Mounce

What Is A Fishing Regulation?

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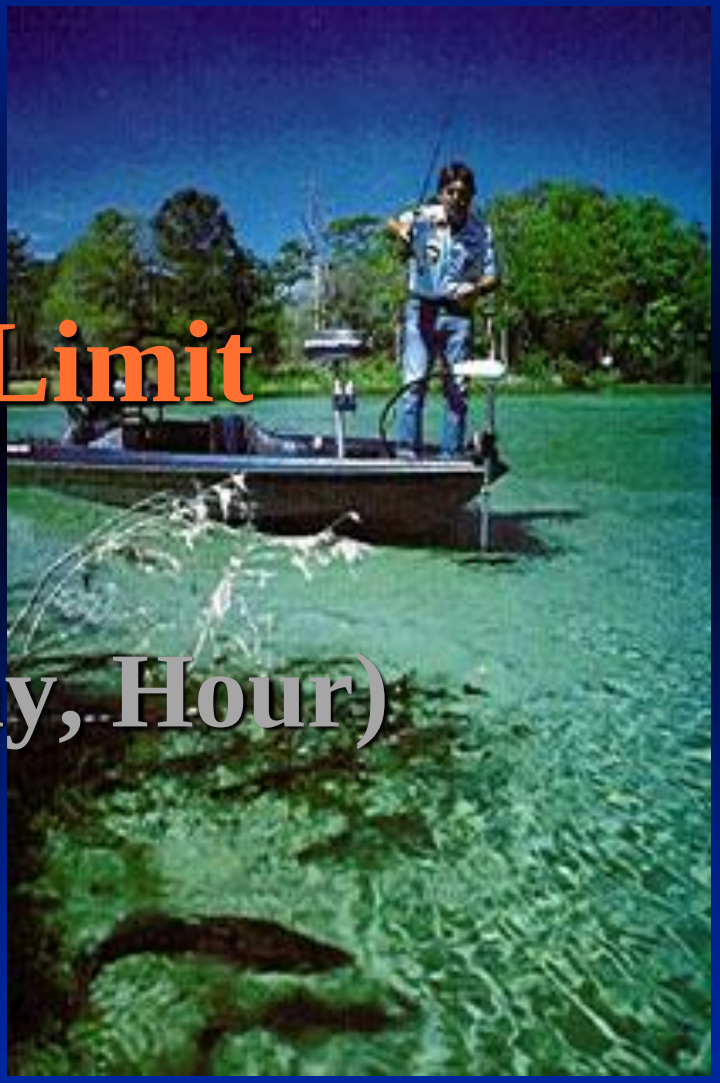


How are Regulations Chosen?

Based on the 3 "Rate Functions of Population Dynamics"

- **Recruitment**
- **Growth**
- **Mortality**

***Novinger, 1984, Fisheries**

How are Regulations Chosen?

Based on the 3 "Rate Functions"

- **Recruitment**
- **Growth**
- **Mortality**
  - **Natural Mortality**
  - **ANGLING MORTALITY**

***Novinger, 1984, Fisheries**

Are Regulations Needed????

High Levels of Fishing Related Mortality – i.e. HARVEST!!!!!!

Not Fishing Pressure!

Ecological/Habitat Issues?

"Cycles" ?

Usually <u>NOT</u> Addressed by Regulations

Ecological Buffers

Carrying Capacity
(Soil Fertility)

Growing Season

Surface Area

Habitat

Creel and Length Limits

Describe the Regulation and Types

List Regulation Objectives

List Positive Aspects of the Regulation

List Negative Aspects of the Regulation

Creel Limit?

Number of Fish That Can be Harvested within a Particular Time Frame – Usually Daily

Creel Limits - Types

- Catch and Release – No Harvest
- "Biological" –
  1-10 fish/daily
- "Sociological" –
  10-50 fish/daily

Creel Limits - Objectives

- Reduce Harvest
- Divide the Harvest More Equitably
- Provides a Target and the Satisfaction of Catching a Limit

Noble & Jones, 1993, Kohler & Hubert editors. Inland Fisheries Management in North America.

Creel Limits - Positive Aspects

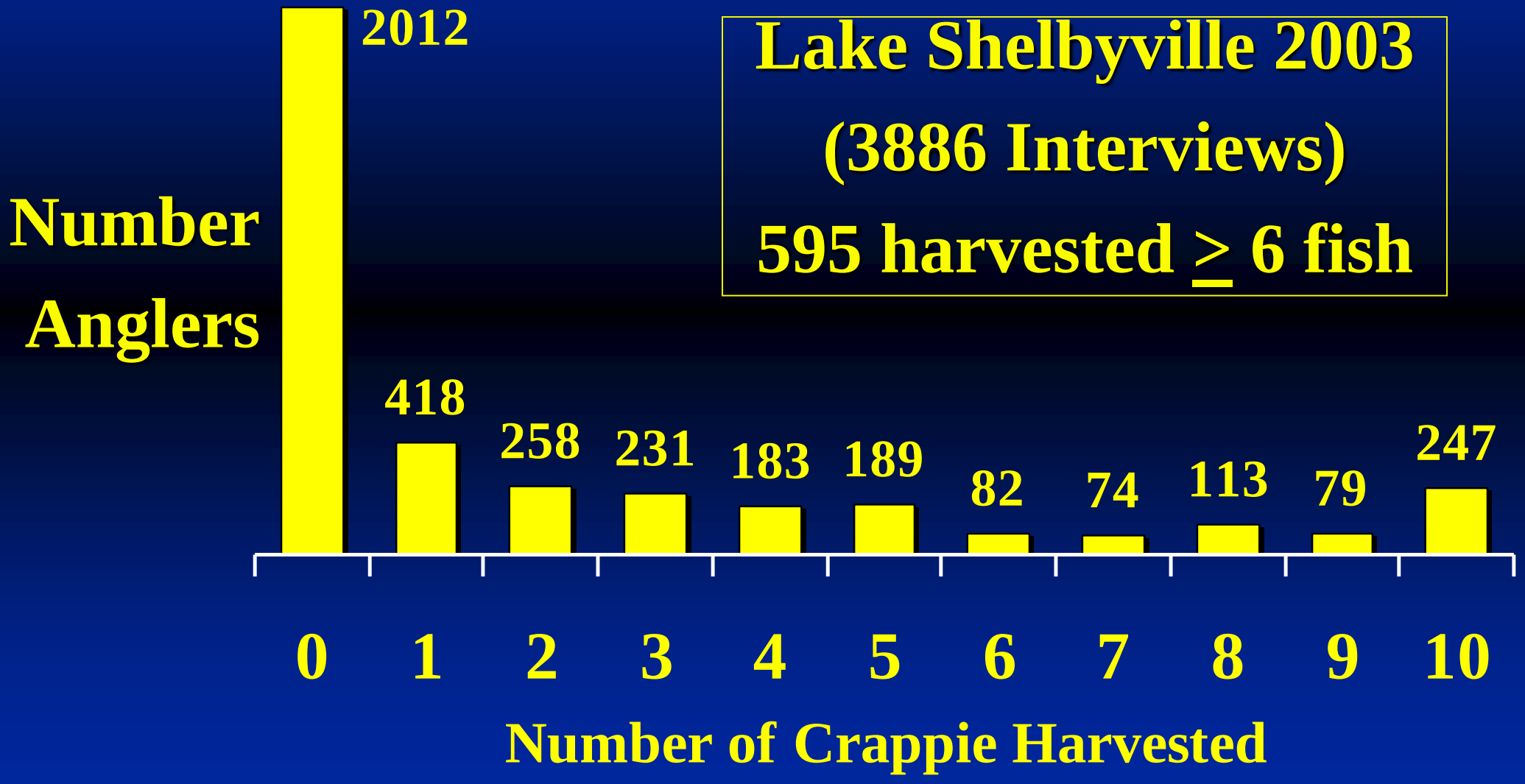
- Historical Use -
  - Easily Understood by
    - Help w/ Anglers Compliance

- Provide a Measure of Success
  - "I caught a limit" = Happy

Creel Limits - Negative Aspects

- Generally Ineffective w/o an Additional Size Regulation - Few Anglers Harvest Their Limit
- Public Misconception of High Effectiveness
- May Deter Anglers when Set at Biological Levels of Effectiveness
- Sociological Limits Predisposed to Simple Counting Errors

Creel Limits - Negative Aspects



Length Limit?

Protects a Specific Length of Fish from Harvest

Length Limits - Objectives

- "Maximize Yield, Brousseau & Armstrong, 1987
- Prevent Overharvest and Depletion of Fish Stocks,
- Maintain Favorable Fish Population and Community Structure,
- Maintain Favorable Growth, Mortality, Reproduction, and Recruitment Rates,
- Sustain the Quality of Fish & Fishing and a Level of Benefits - in Proportion to the Productivity of the System"

Size Limits - Types

- Minimum Length Limit
- Slot Length Limit
- Maximum Length Limit
- “Variable” Length Limit (1 over : 1 under)
- Combination of Length Limits

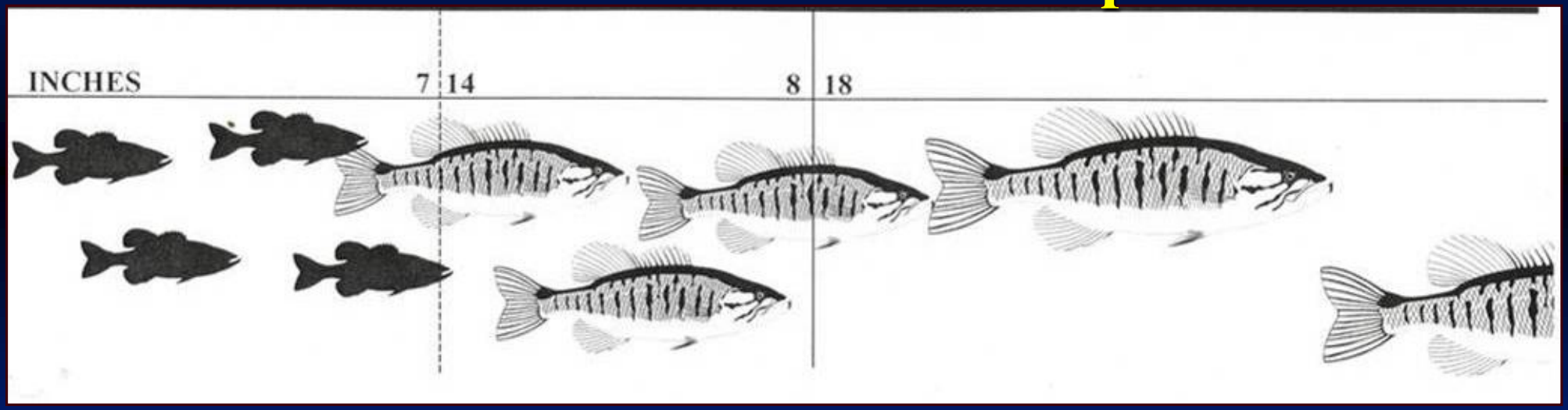
Minimum Length Limit

- Restricts Harvest of "Smaller" Fish

Most Commonly Used Length Limit

Minimum Length Limit

Juveniles **Mature** **“Keepers”**



Poor Recruitment
Fast Growth

Low Numbers
Fast Growth
Low Natural Mort.

Minimum Length Limit – "+"

- Historical Use -
  Easily Understood by Anglers
- Usually Increases Catch Rates
- Can be Used to Control Other Species
- May Carry Over to Greater Release of Other Species (i.e. Crappie)
- Ideal for Put-Grow&Take Fisheries

Minimum Length Limit – "-"

- "Most Often Applied Inappropriately"
  - Protects Too Many Small Fish

- Usually Only a Moderate Increase of Large Fish
- Usually Reduces Total Harvest
- Novice Anglers Participate in Harvest
- Usually Does Not Improve Recruitment

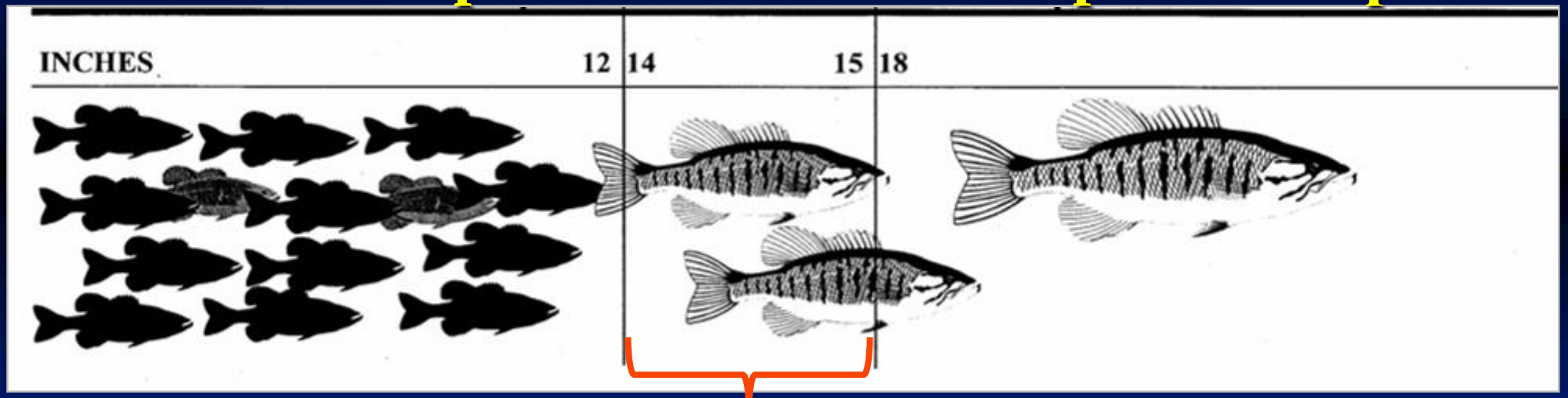
Slot Length Limit

- Restricts Harvest of “Medium-Sized” Fish

  - Largemouth Bass & Walleye

Slot Length Limit – Before

Juveniles-Keepers **Release!** **Keepers/ “Trophies”**



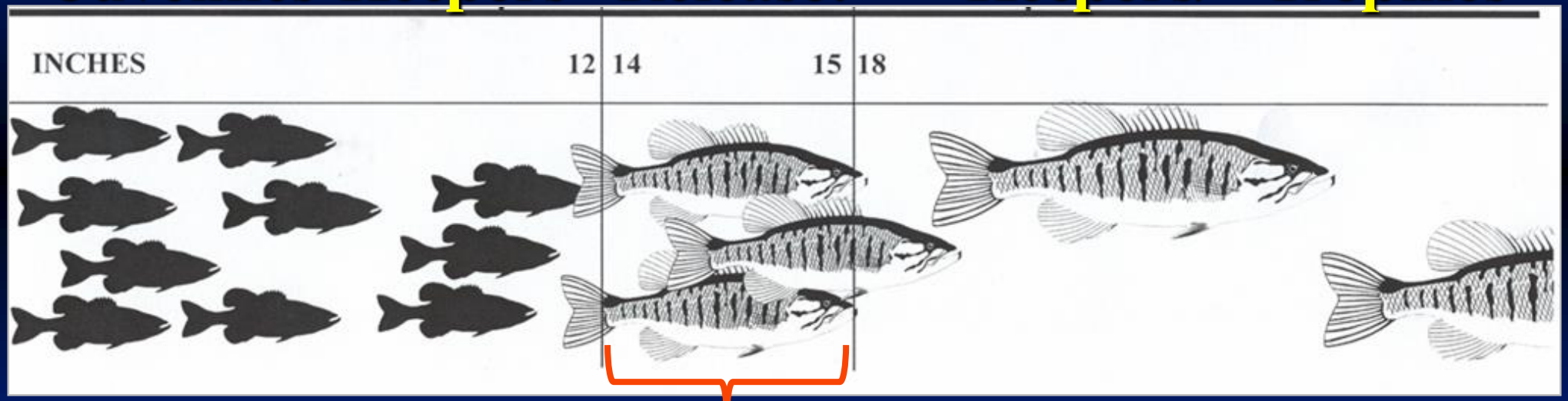
High Recruitment
Slow Growth
High Natural Mort.

Moderate Numbers
Improved Growth
Low Nat. Mort.
Prey abundant

Low Numbers
Fast Growth

Slot Length Limit – After

Juveniles-Keepers **Release!** **Keepers/ “Trophies”**



Reduced Numbers
Improved Growth
Lower Natural Mort.

Improved Numbers
Fast Growth

Improved Numbers
Fast Growth

Slot Length Limit – “+”

- Improves Growth of “Stunted” Small Fish
- Increase Number of Med. - Large Fish
- Novice Anglers Participate in Harvest
- May Allow Increase of Other Species

Slot Length Limit – "-"

- Not Readily Understood by Anglers
- Not Readily Understood by Biologists?
- Requires Harvest of "Small" Fish
  - if not acts like min. length limit
- Usually Reduces Total Harvest

- Not Readily Applied for Smaller Species?

(Crappie, White Bass, Bluegill)

Maximum Length Limit

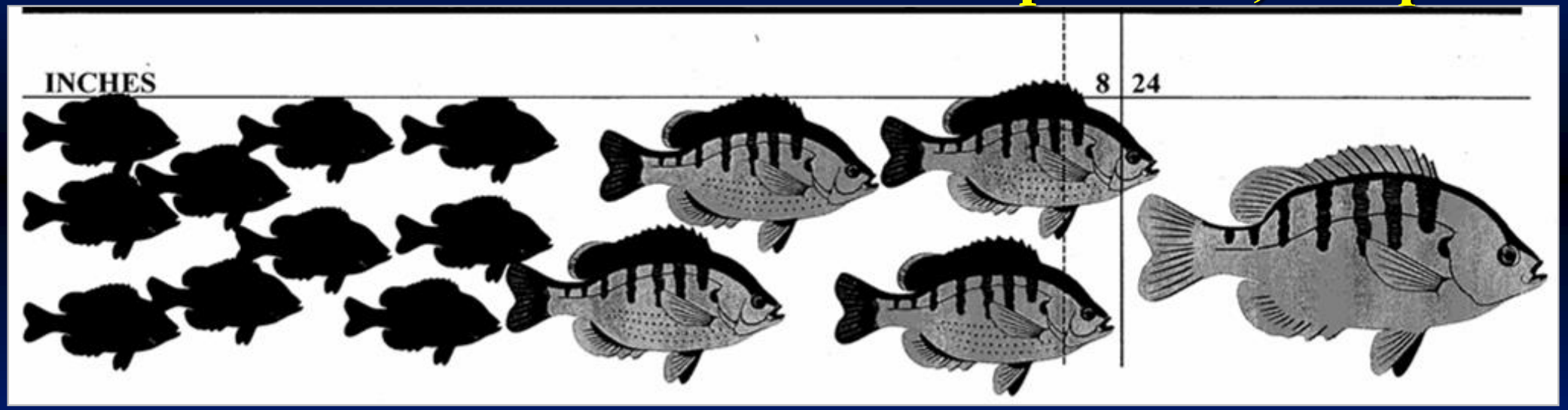
- Restricts Harvest of "Larger" Fish

  - Commonly Used in Cool and Coldwater Fisheries

Maximum Length Limit

"Keepers" Mature,
Spawners,"Trophies"

Juveniles



Low-High Recruitment
Slow-Mod. Growth
Low-Mod. Natural Mortality

Moderate Numbers
Slow-Mod. Growth

Low Numbers
Slow-Mod. Growth

Generally Slow Growth in Cold Water

Maximum Length Limit – "+"

- Applied to Slow Growing & High Density Populations (Walleye, Crappie, Bluegill, Bass)
- Improves Growth of "Stunted" Fish
- Increase Number of Large (Trophy) Fish
- Novice Anglers Participate in Harvest
- Allows Generous Harvest

Maximum Length Limit – "-"

- Not Readily Understood by Anglers?
- Not Readily Understood by Biologists?
- Requires Release of "Large/Trophy" Fish
- Total Harvest - ↓ or ↑ ?

Cheat Sheet - given sgnfcnt angling mortality

Rate Function	Regulation		
	Min. L. L.	Slot L. L.*	Max. L. L.
Recruitment	Low	High	Low-High
Growth	Fast	Slow ➡ Mod	Slow-Mod
Nat. Mort. Stock	Low	High ➡ Mod	Mod ➡ High
Forage Density	High	Mod-High	Low-Mod

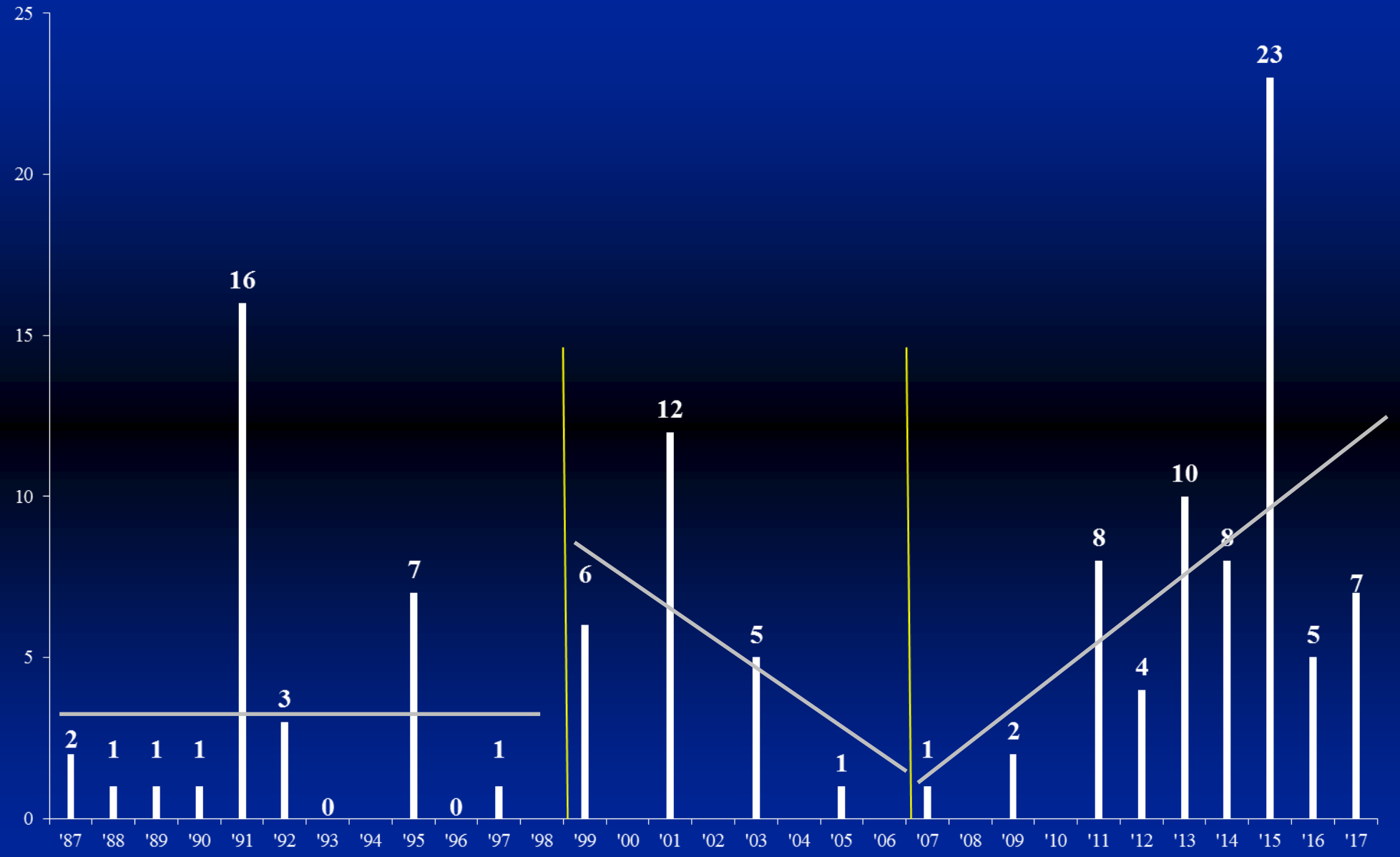
➡ = change

* Usually applied to longer species

Future of Regulations

Noble & Jones, 1993, Inland Fisheries Management in North America

"There is little doubt that the role of regulations in fisheries management will increase in the future"……"To meet the increased demand for fishing both in quantity, quality, and diversity, it will be necessary to more closely tailor regulations to specific situations. That will mean the abandonment of many regional regulations in favor of resource-specific regulations which are based upon" the rate functions……"Public education will be an integral part of the development of site-specific regulations……the fisheries manager will be more accountable……the manager will need to justify and evaluate sociologically" (based objectives)…… "as well as biologically based objectives."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BASS


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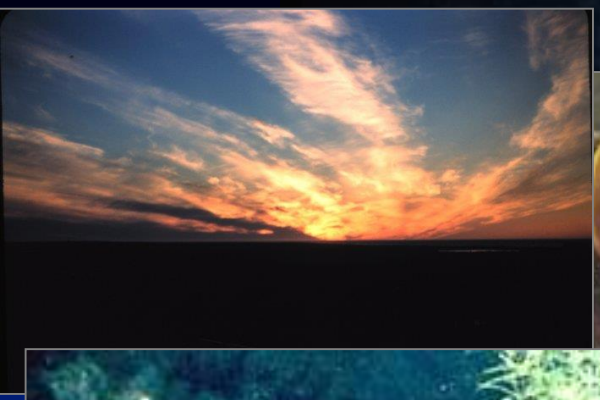


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