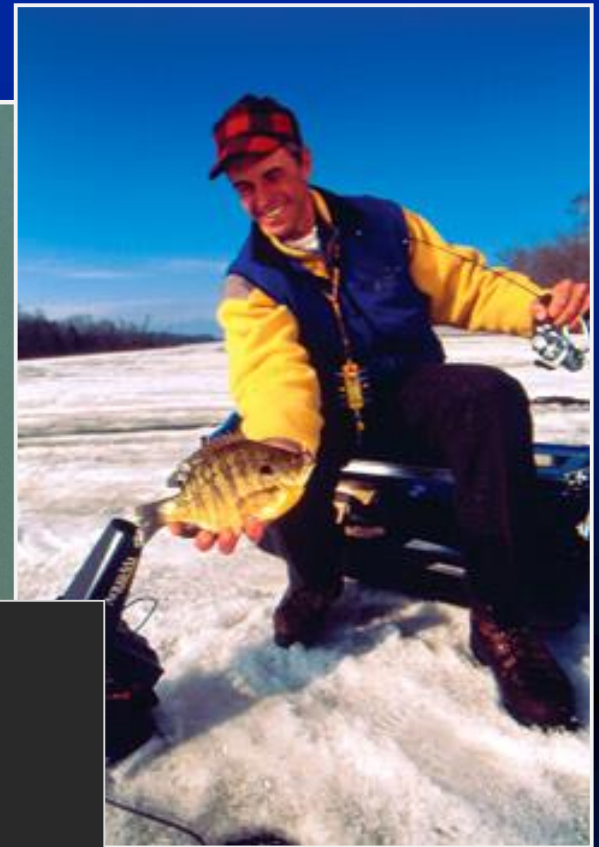


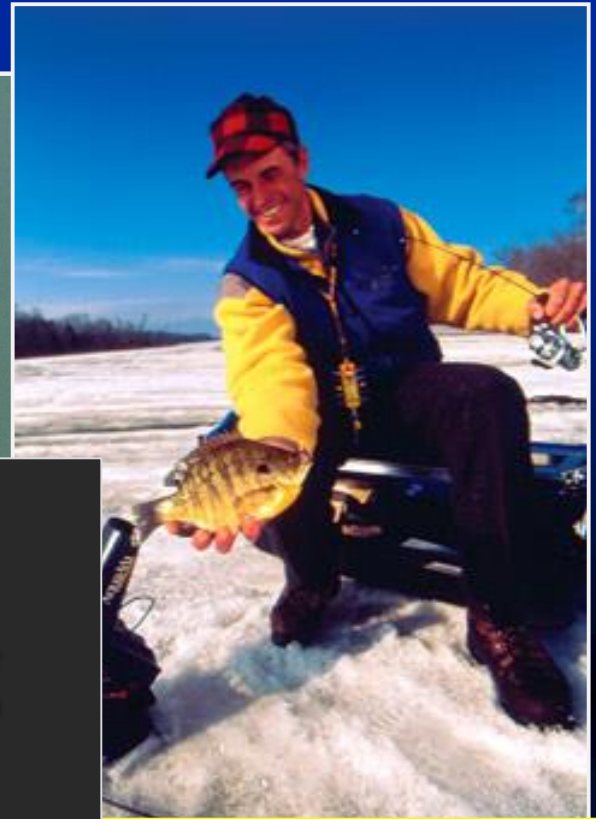
# What's the Bottom Line???



**ALL Types of  
Anglers Want  
Quality Fishing  
Experiences!**

**2016 - USFWS - Panfish  
2<sup>nd</sup> # Anglers (29%)  
2<sup>nd</sup> Angling Days (29%)**

# What's the Bottom Line???



**Anglers Want  
Quality Fishing  
Experiences!**



# Need for Bluegill Management?

- Goedde & Coble, 1981
  - Coble, 1988
  - **Dufford, 1993**
  - Jennings, Clausen, Philipp, 1997
  - Ehlinger, 1997
  - Reed & Parsons, 1999
  - Tomko & Pierce, 2005
  - Edison, Wahl, Diana, et. al., 2006
  - Diana, Stein, et. al., 2007
  - Oplinger, Diana, Wahl, 2013
  - Rypel, (2015)
- Large BLG easily overharvested.
  - **Social component growth in BLG, maintaining larger males important.**
  - Anglers desire regulations, but they and biologists often don't understand what regs. will work.



# Acknowledgements

- **Dr. Anthony Porreca - Illinois Natural History Survey (INHS), Kaskaskia Biological Station**
- **Dr. Robert Colombo - Eastern Illinois University**
- **Dr. Dave Wahl and Matt Diana - (INHS), Kaskaskia Biological Station**
- **Region 3 Division of Fisheries & others**
- **Julia Colombo (educational brochure+)**



# Active Bluegill Management for Improved Angling Quality: Walnut Point Lake a Case Study in Central Illinois

Michael Mounce



# Walnut Point Lake

22 ha. (52 acres)

Average depth 3.8 m (12.5 ft.)

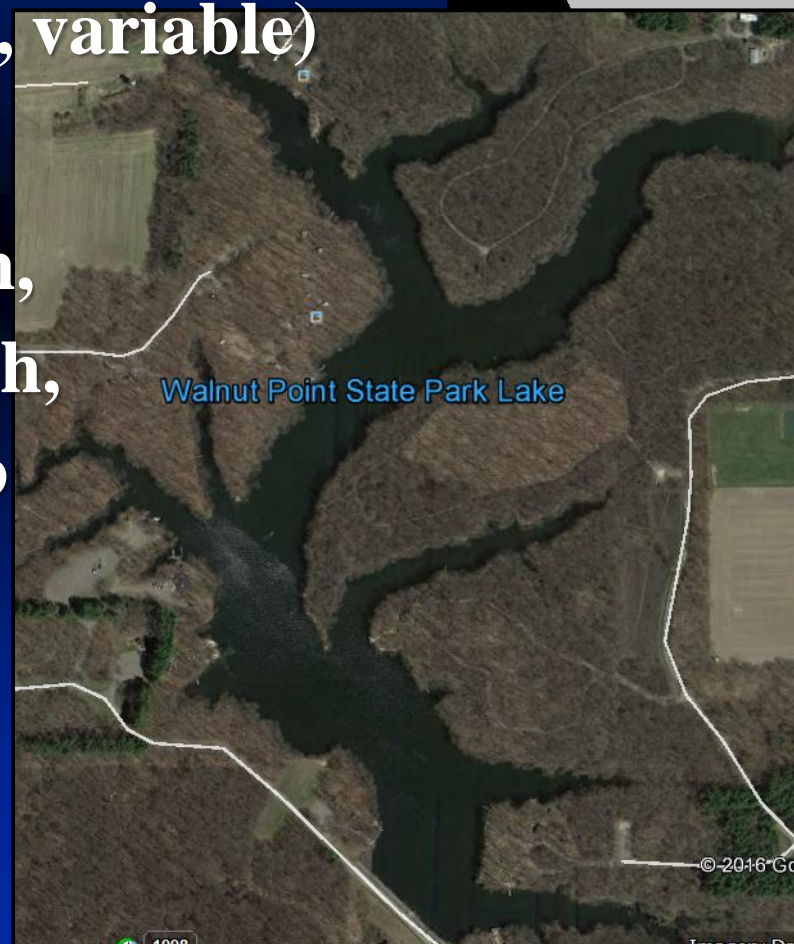
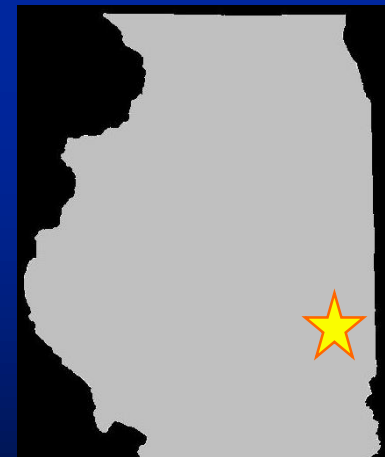
Highly eutrophic (SAVs – low, variable)

Largemouth bass, Bluegill,  
Black crappie, Redear sunfish,  
Green sunfish, Channel catfish,  
*Flathead catfish, Common carp*

Electric boat motors only

Great shoreline access

Camping & concession



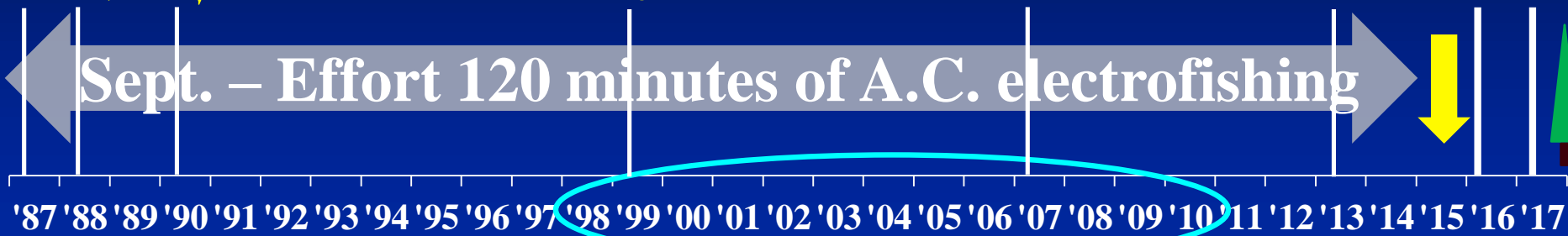
# History of Fisheries Mngmnt. - W.P.L.

**Grass Carp Project - 250 stocked**  
**Slot Length Limit - Lrgnth. Bass**  
**Angler Complaints - SAV's Reduced**

**8" Minimum L. L. - 10 fish Creel**  
**Quality Bluegill Management**

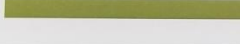
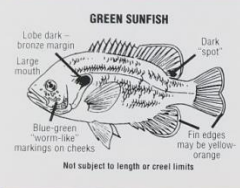
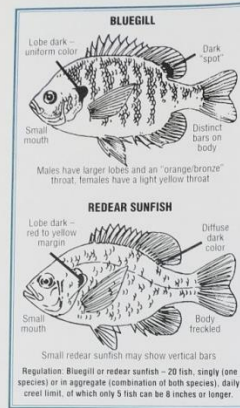
**8" Maximum L.L. - 15 Fish Creel**

**8" Max. L.L. - 20 Fish Creel**  
**D.C.**





# Educational Brochure Paramount for Angler Acceptance!



**Division of Fisheries**  
*Building the Future of Fishing in Illinois*  
[www.dnr.illinois.gov/Parks/Pages/WalnutPoint.aspx](http://www.dnr.illinois.gov/Parks/Pages/WalnutPoint.aspx)  
[www.fishillinois.org/profiles/displayLake.php?waterNum=00127](http://www.fishillinois.org/profiles/displayLake.php?waterNum=00127)

**Review**

- Research shows that overharvest of large male bluegill results in early maturation and stower growth of smaller male bluegill, labeled "stunted" fisheries in error.
- Historically, 8-inch bluegill were sporadic and usually rare in Walnut Point Lake prior to regulations. (See graph on inside)
- The previous 8-inch minimum length limit resulted in stockpiling (stunting) below the limit due to moderate growth and high reproductive rates of bluegill. (See graph)
- The maximum length limit has maintained large bluegill, 8 inches and longer, for over 11 years. This allows anglers of all skill levels to participate in the harvest!
- Long-term biological and sociological benefits have been achieved through this regulation.
- Catch-and-release of the largest bluegill is the key for continued improvement of quality in this bluegill fishery.
- Angler cooperation is necessary to achieve the full potential of this regulation, as even small amounts of illegal harvest can mask or void management benefits.

As with any regulation evaluation, angler feedback is welcome and is very important. To address questions and concerns, contact:

Mike Mounce, Fisheries Biologist  
 Telephone: 217-345-2420 or  
 Email: [mike.mounce@illinois.gov](mailto:mike.mounce@illinois.gov)

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 DNR ORC 19-0007 • 1M • 0/18 • ICI 19-0059

State of Illinois  
 Department of Natural Resources

## Bluegill Fishing and Management in Walnut Point Lake

Walnut Point State Park  
 2331 E. County Rd. 370 North  
 Oakland, Illinois 61943

Division of Fisheries

## Developing Quality Bluegill Fishing

- Bluegill Research Results**
- Lakes closed to fishing (angling) support higher quality bluegill populations.
  - Once opened to unregulated angling, the average size of bluegill quickly declines due to overharvest of the larger bluegill.
  - The largest male bluegill get the best nest location in nesting colonies (the center nests). Females lay the vast majority of eggs in these central nests guarded by larger males, while the surrounding nests of smaller males get very few or no eggs.
  - Just the simple presence of large male bluegill can result in the delay of sexual maturity of smaller male bluegill due to this competition for prime nests and eggs. Delayed sexual maturity results in faster growth rates for all bluegill.
  - Time and energy invested in spawning slows growth significantly in most fishes.
  - Anglers want and will increase trip numbers for quality bluegill fisheries.
  - Effective management for quality bluegill angling should focus on increasing the age of maturation and abundance of large male bluegill.

**Management on Walnut Point Lake**

Historically, the presence of bluegill longer than 8 inches was highly sporadic and usually rare in Walnut Point Lake, as in most public water bodies. Recent research strongly indicates that active bluegill management can provide both biological and sociological benefits in bluegill fisheries. Anglers have indicated a desire for higher quality fishing opportunities.

In 1999, the IDNR, through the Illinois Natural History Survey conducted a study throughout Illinois to assess bluegill management techniques using an 8-inch minimum length limit and a 10-fish daily creel limit.

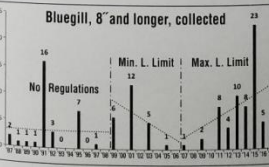
Initially, the results of this regulation were very promising at Walnut Point Lake. However, the prolific nature of bluegill and lack of harvest of intermediate-sized fish resulted in "stockpiling" or "stunting" just below the 8-inch limit. This resulted in the loss of harvest opportunities and a reduction in both angling quality and angler effort.

In 2007, a maximum length limit was initiated. This regulation type works best in fish populations with high reproductive success and slow to moderate growth rates, like most bluegill populations. By thinning overly-abundant bluegill less than 8 inches, yet protecting some larger fish, angling quality should improve. The limit allowed the harvest of 15 bluegill or redear sunfish daily, of which, only 5 could be 8 inches or longer.

Again, results were promising. Catch rates of bluegill 8 inches and longer increased rapidly, the age structure improved, and angling effort increased. However, by 2011, evidence indicated the bluegill might be stockpiling as the body condition of intermediate-sized fish dropped.

In 2013, the creel limit was increased to 20 bluegill or redear sunfish per day to further reduce the number of intermediate-size fish, still allowing the harvest of up to 5 fish, 8 inches or longer. Results indicate the body condition of intermediate-size bluegill has improved. Increased stability in the numbers of large bluegill indicates the length and creel limits are functioning as desired!

As of spring 2018, higher numbers of bluegill, 8 inches and longer, have been maintained in the population for



eleven consecutive years! The improved fishing quality has attracted more anglers, making active management of bluegill with regulations even more important. Both biological and sociological benefits have been realized by using active management for bluegill at Walnut Point Lake! (See the graph, with trend lines, below!)

- Strategies for Improvement**
- Practice catch-and-release of the largest male bluegill. Historically, it may be the standard practice to harvest the largest bluegill caught, but studies strongly indicate that releasing and maintaining the largest males will delay sexual maturity of smaller male bluegill, giving them a better chance to grow large themselves and improve fishing quality.
  - Take photos of the catch, rather than harvesting big fish. This can provide proof of the catch quality and contribute significantly to improving angling quality for the future.



**Cooperation Is Key**

Only with the aid and cooperation of all anglers will this regulation demonstrate its full potential. Even small amounts of illegal harvest, culling, or failure to report illegal activities will counteract management benefits. Although different from more familiar regulations, this regulation is being used to improve angling quality, while maximizing harvest opportunities for anglers of all skill levels!

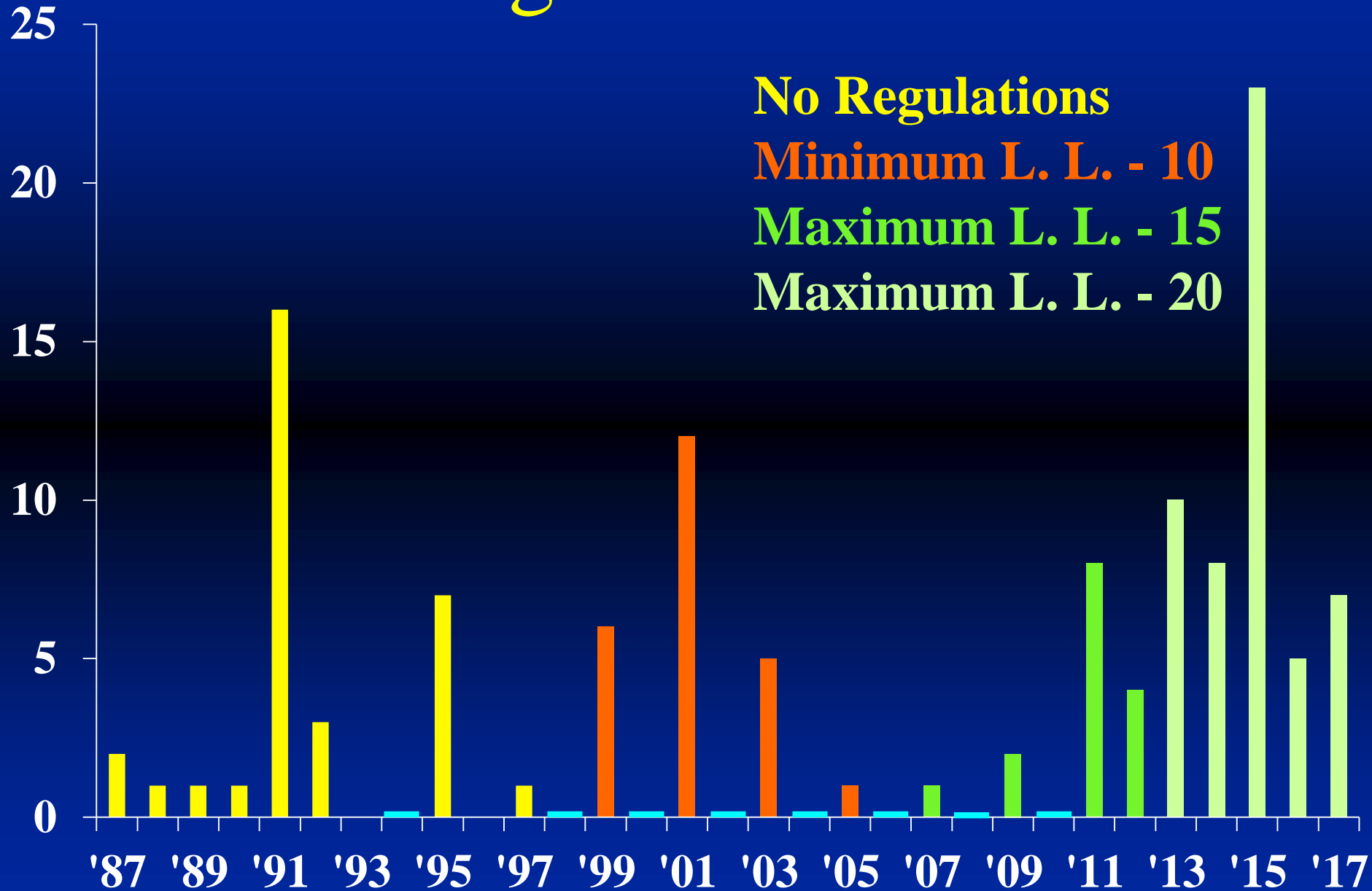
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- Green Sunfish**
- These limits do not apply to green sunfish.



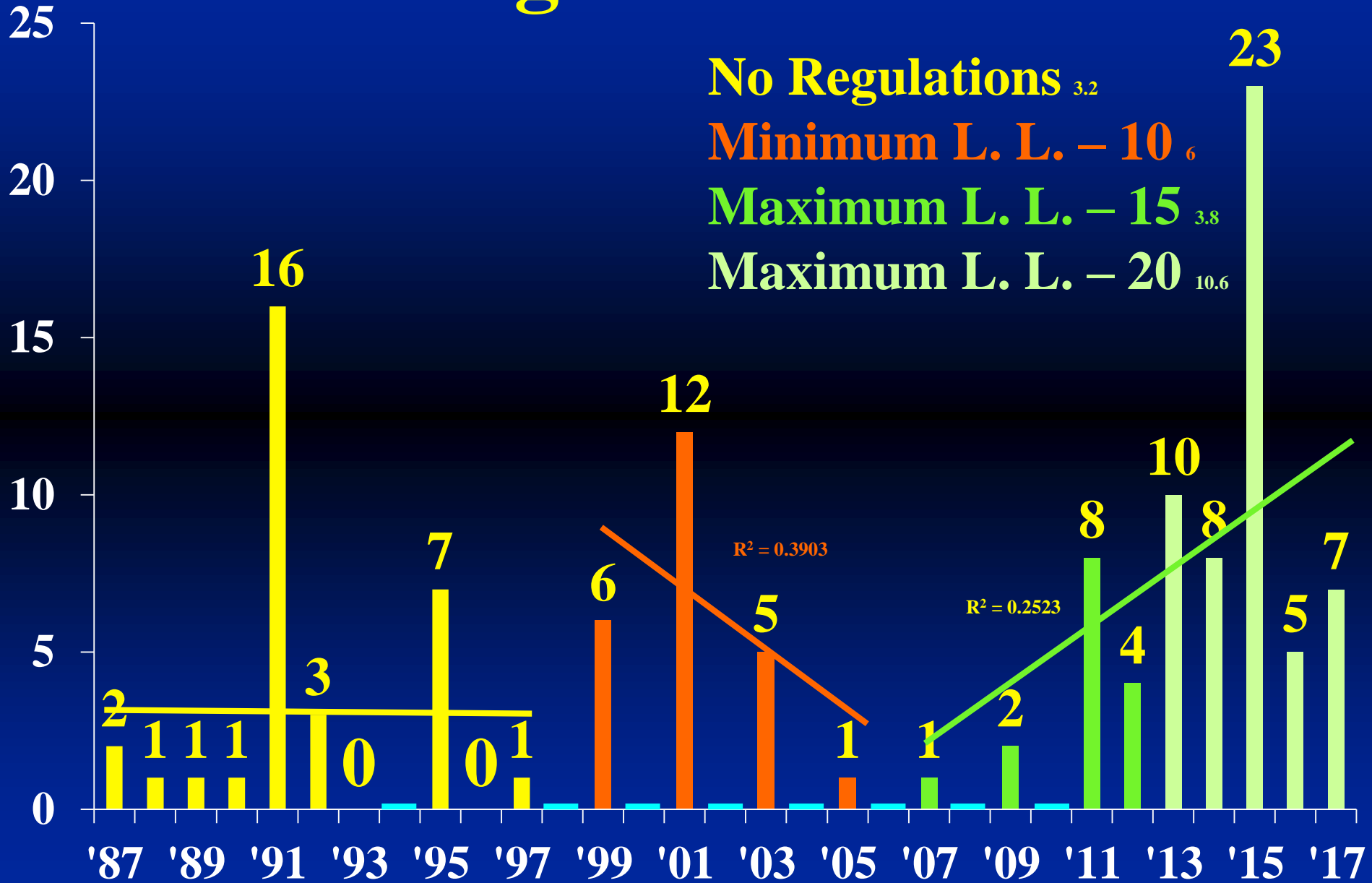
Is there any indication that the quality of the fishery has changed using active management?



# No. of Bluegill 20+cm collected



# No. of Bluegill 20+cm collected





# Bluegill PSD P

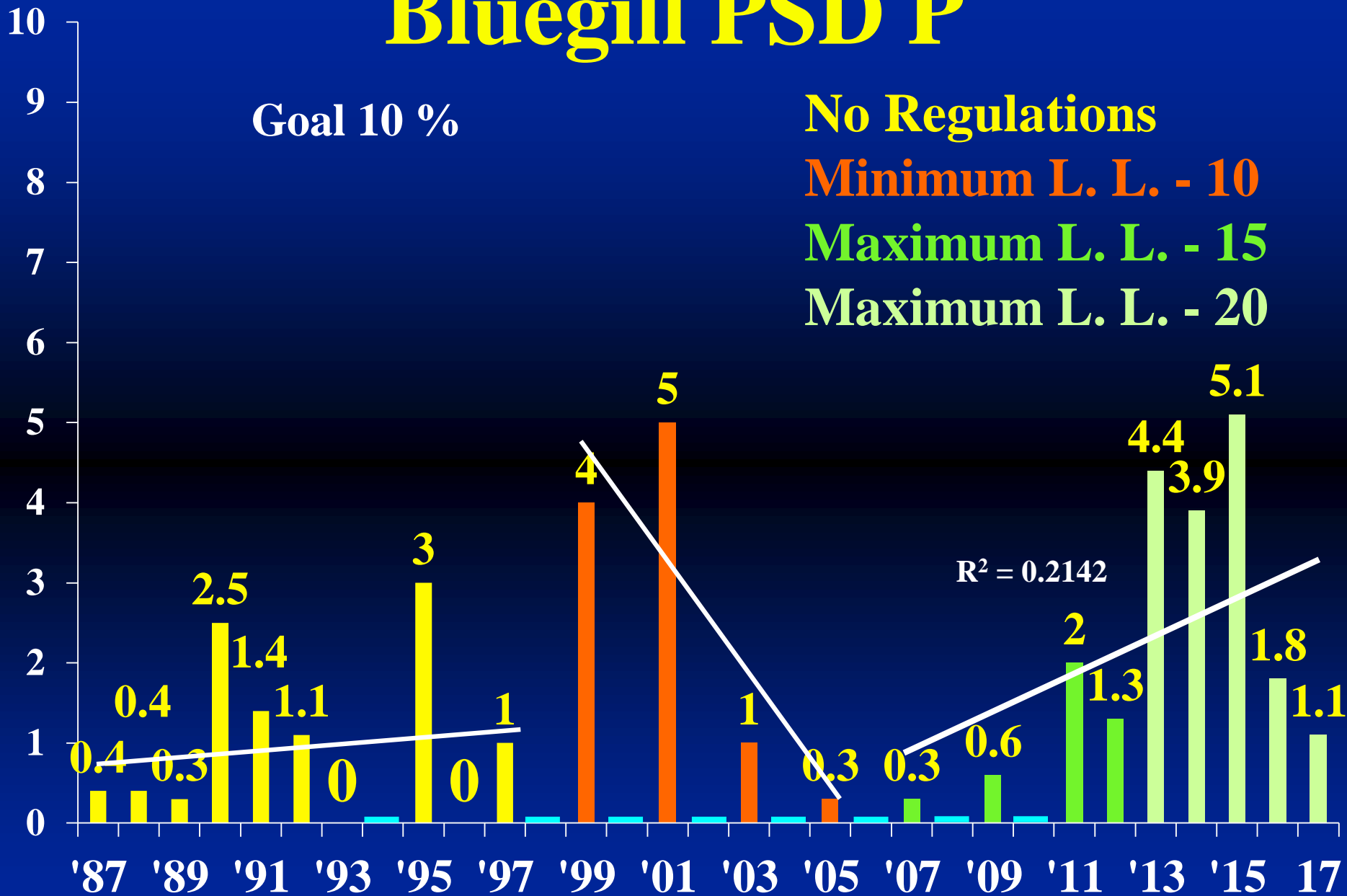
Goal 10 %

No Regulations

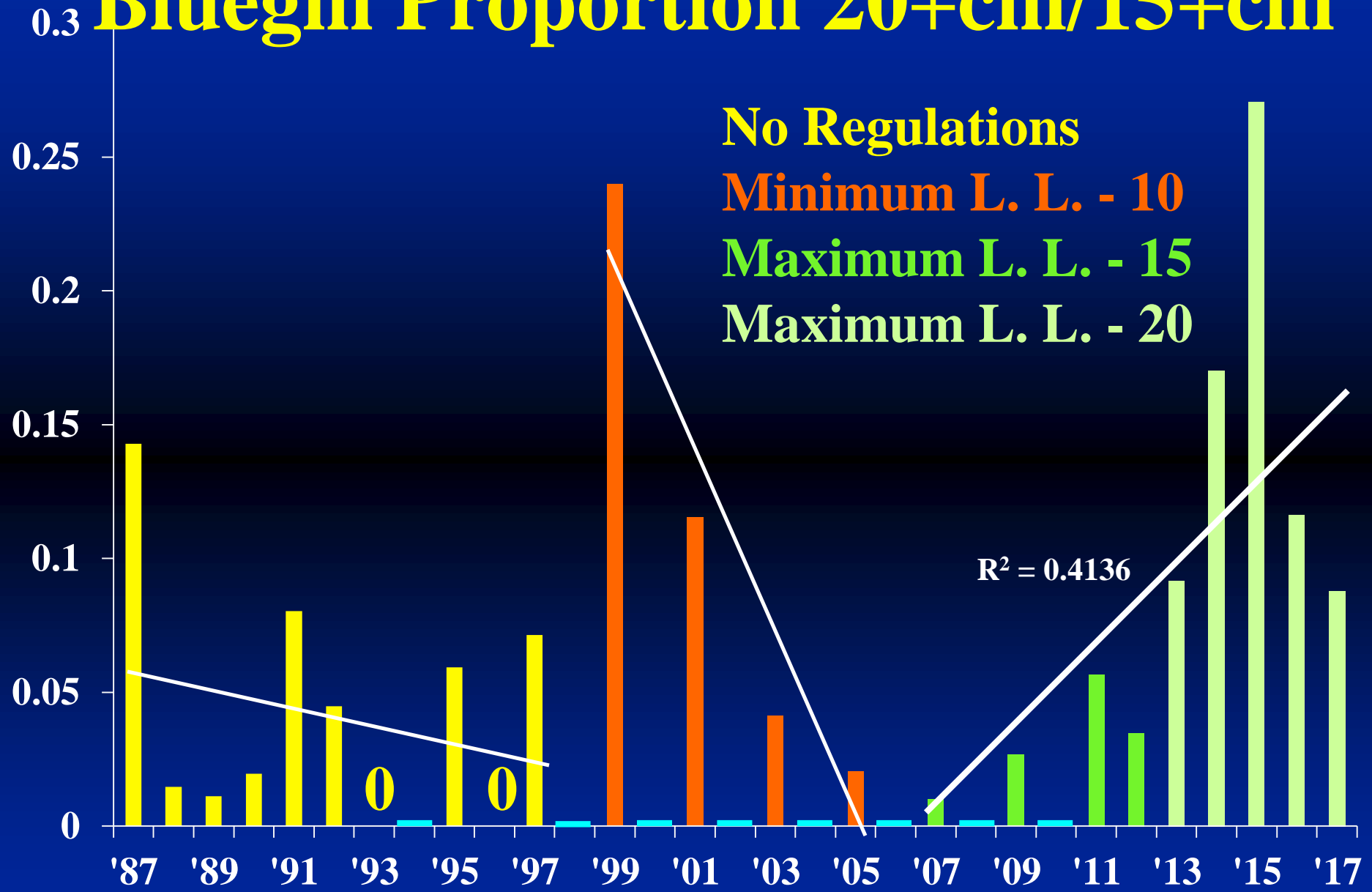
Minimum L. L. - 10

Maximum L. L. - 15

Maximum L. L. - 20

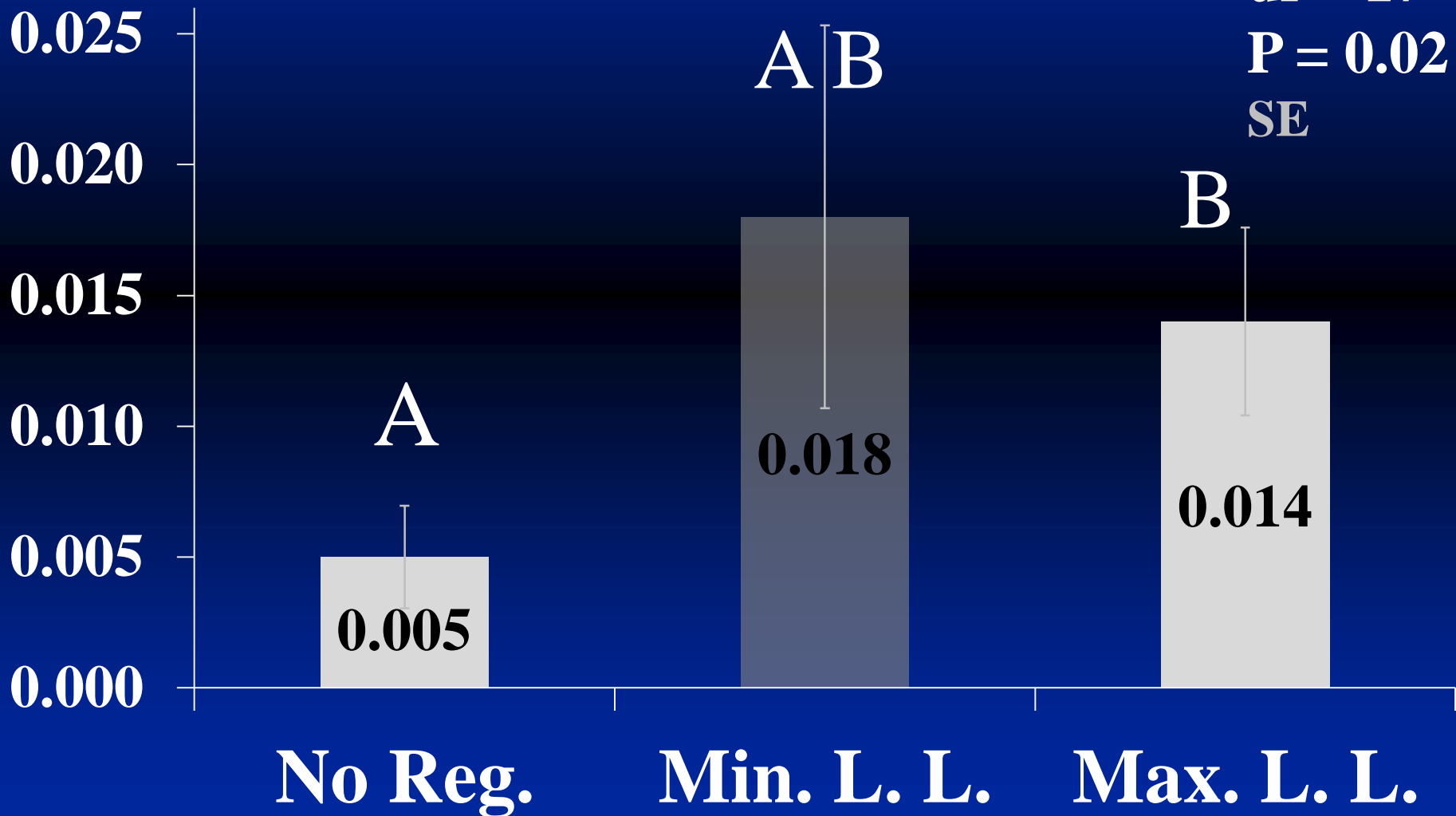


# Bluegill Proportion 20+cm/15+cm



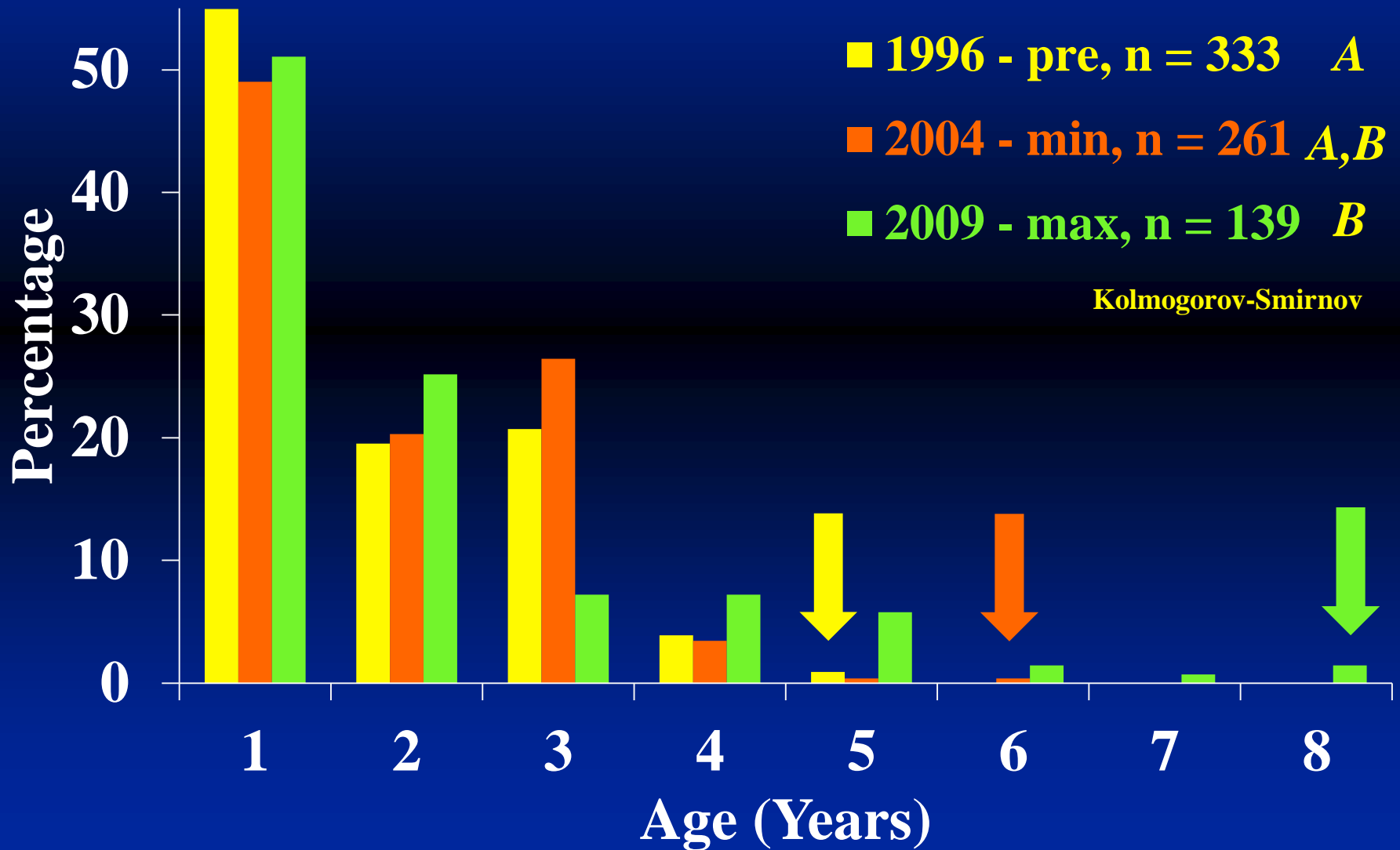
# Avg. of the Proportion of Bluegill 20+cm collected (Arcsine (square root) transformed)

$t = -2.55$   
 $df = 17$   
 $P = 0.02$   
SE





# Age Distribution from INHS Spring Surveys from 3 Regulation Periods



# Are there any concerns?

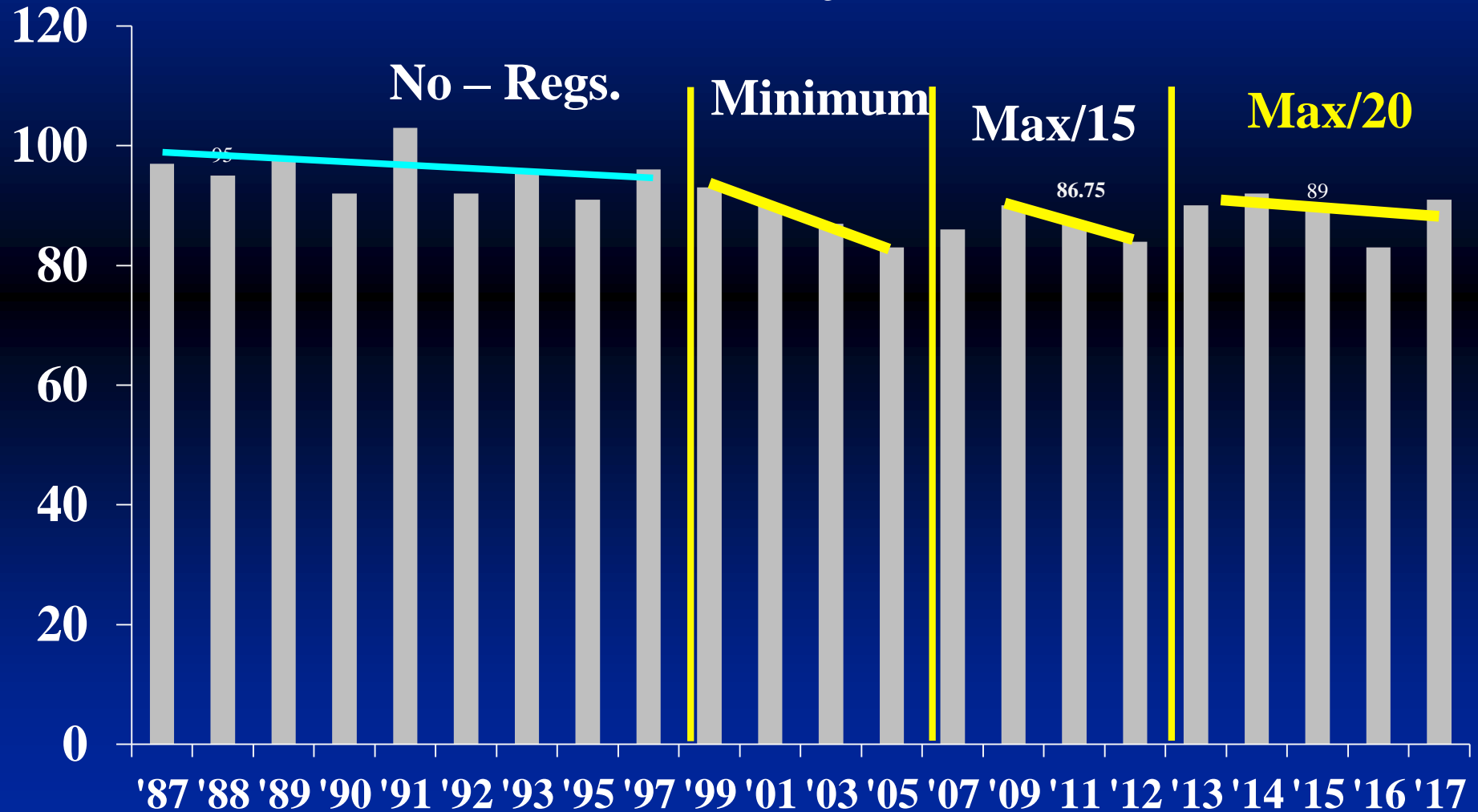
Wr of intermediate and larger bluegill after regulations were applied.

Did the change in the creel limit  
under the maximum size limit,  
from 15 to 20 fish per day,  
produce it's intended effect?

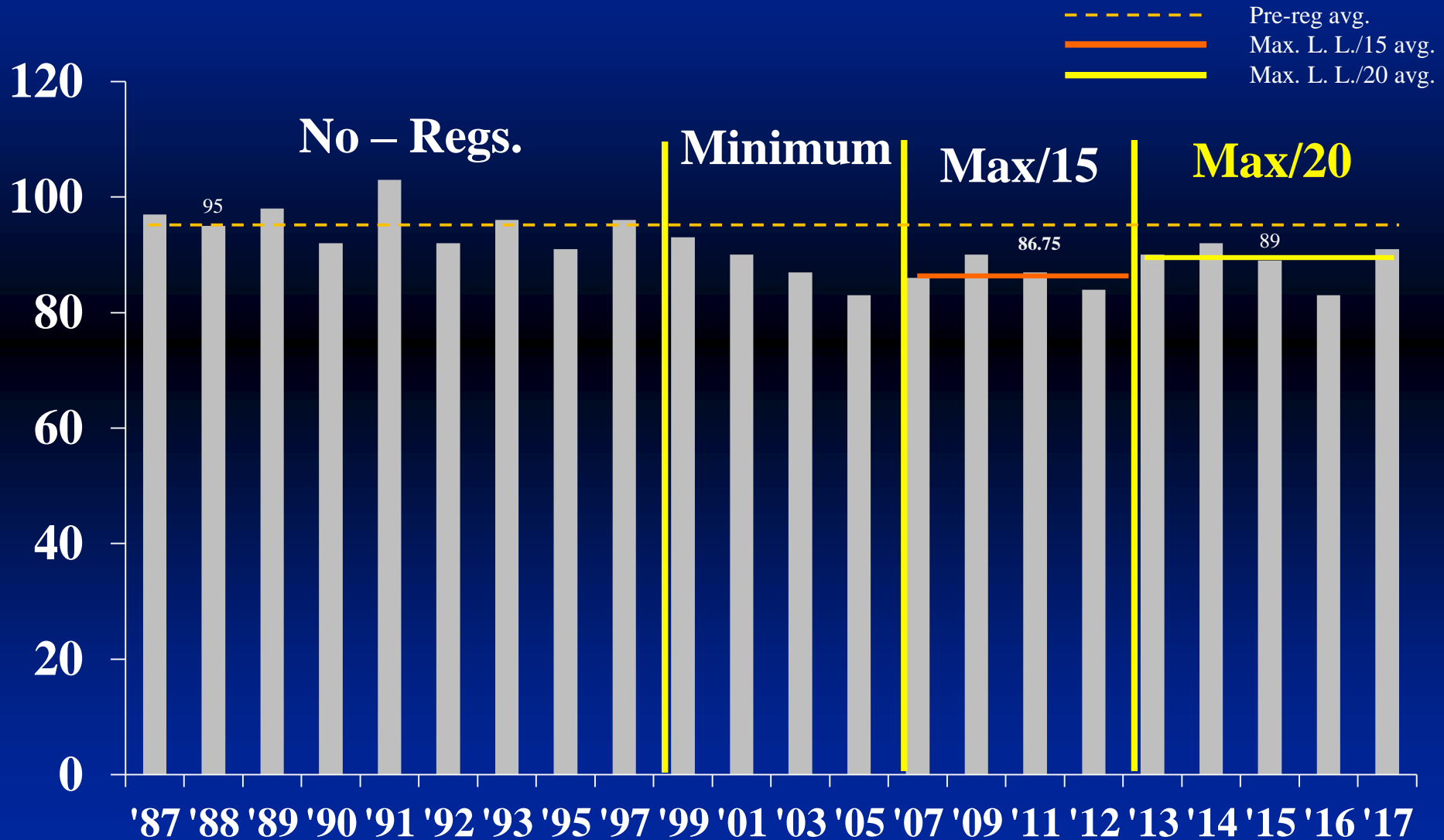




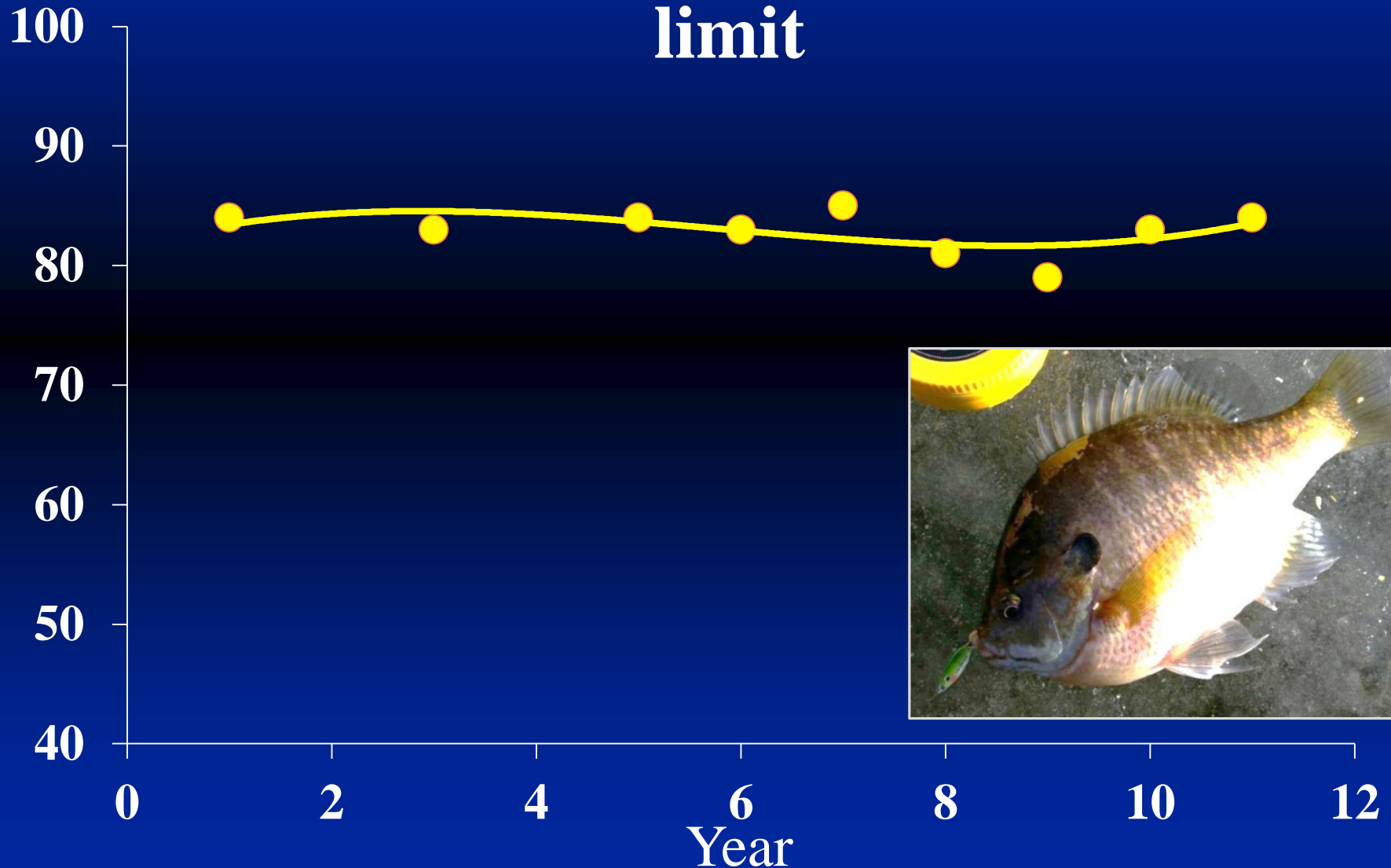
# Relative Weight (Wr) of “intermediate-size” (150-199mm) bluegill from IDNR fall surveys



# Relative Weight (Wr) of “Medium-size” (150-199mm) Bluegill from Fall Surveys



# Relative weight ( $W_r$ ) of “preferred-size” bluegill (20 cm+) under maximum length limit



# Summary

If creel limits are being considered, maximum length limits can potentially improve and stabilize bluegill angling quality, ↑ harvest.

As demonstrated, the length and creel limit values used should not be considered universally applicable. “Best fit” is based on bluegill population dynamics and angler creel survey data.

As utilized here, this is NOT a trophy bluegill regulation

Any size limit should be based on the potential for fish to reach that length & not set TOO low. Creel limits should be based on angling pressure and the productivity of the waterbody.

Competition with gizzard shad or other species can have a significant effect on the success of the regulation. Depending on demand for improved angling quality, length and creel limit values can be adjusted to get the appropriate effect in lakes with reduced growth, then re-adjusted if and when the fishery improves.

# Summary

**Under the maximum length limit a significant positive trend of increasing numbers of preferred-length and larger (20 cm+) bluegill was observed, indicating an improvement in quality of this bluegill fishery (recent angler creel information lacking).**

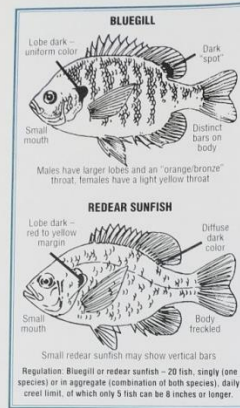
**Increases in the creel limit from 15 to 20 appears to have resulted in modestly improved body condition of intermediate-size (15-19.9 cm) bluegill. An increase to 25/day may be warranted to improve body condition.**

**Age structure improvements indicate reduced mortality rates.**

**This regulation is fairly popular with anglers, as fishing pressure has increased and non-compliance seems to be minor. A few fishermen are releasing most, if not all, of the larger bluegill.** A similar harvest strategy is working very well in private ponds.



# Educational Brochure (copies available)



**Division of Fisheries**  
*Building the Future of Fishing in Illinois*  
[www.dnr.illinois.gov/Parks/Pages/WalnutPoint.aspx](http://www.dnr.illinois.gov/Parks/Pages/WalnutPoint.aspx)  
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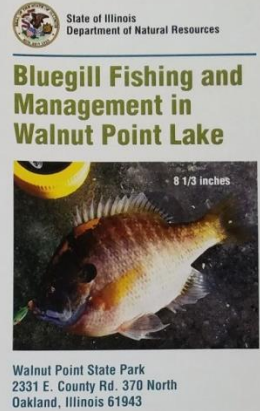
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DNR ORC 19-0007 • 1M • 0/18 • ICI 19-0059



**Division of Fisheries**

Illinois Department of Natural Resources

SPORT FISH AND RESTORATION

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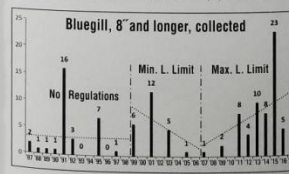
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February –  
March, 2015



9.75" - Released!