



Evaluation of Spawning Success of Channel Catfish using Pennsylvania Channel Catfish Spawning Boxes

Michael J. Porta, Gary A. Smith, and Benjamin S. Page
July 2012

Mission: To protect, conserve, and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities

Channel Catfish in PA

- Popular sport fish in PA
 - 5th most pursued species (USFWS 2006)
- 24 % increase in angler days targeting catfish
 - Trout decreased by 31%
- 230,000 angler trips targeting channel catfish in PA
 - \$14 million in economic value (Lorson et al. 2012)





PFBC Strategic Plan

- Issue 2, Strategy 2, Goal 2, Section H
 - By July 2014, evaluate and improve gamefish management programs for muskellunge, walleye, channel catfish and striped bass/hybrid bass.
- Development of Channel Catfish Management Plan
- Focuses on managing wild and stocked catfish populations



Catfish Stocking in PA

- PFBC stocks catfish to maintain many populations
- Production can be expensive (8” yearling catfish)
- 242,000 fingerlings and 11,000 yearlings stocked in 2011
 - Total cost = \$53,000
- PFBC Channel Catfish Management Plan
 - “There is potential for a reduced need to stock channel catfish in some waters with improvement to or provision of catfish spawning habitat (Lorson et al. 2012)”

Catfish Spawning Habitat

- Spawning habitat lacking in many PA reservoirs
- Cavity nesters
 - Natural recruitment is absent/minimal
- PFBC lake habitat section implements spawning boxes



Courtesy of derdriu.hubpages.com

Objective

- Evaluate the spawning success of channel catfish using PA channel catfish spawning boxes



Methods

- Three study sites:
 - F.J. Sayers Lake (12)
 - Linesville Hatchery (10)
 - Pymatuning Sanctuary (7)
- Boxes checked every 2-4 days
 - June 1 – July 9
- Estimate number of eggs and fry (Linesville/Sanctuary)
- Presence/absence of eggs or fry (Sayers)





Results – Hatchery/Sanctuary

- Hatchery study
 - Successful spawning in 3 of 10 boxes (30 %)
 - 19,000 eggs/box
 - 12,000 fry/box
- Pymatuning Sanctuary
 - No successful spawning in catfish boxes or hatchery container
 - Natural spawning habitat good
 - Self sustaining catfish population

Results – F.J. Sayers Lake

- Catfish successfully spawned in all 12 boxes
- 16 nests successfully produced fry
- Repeat spawning in 11 of 12 boxes
 - Catfish actively searching for spawning sites



Successful Spawning





Sayers Lake Example

Stocking

- Catfish stocked at 5-10 fish/acre
- Equates to 8,650-17,300 catfish stocked
- Stocked as ~2” fingerlings
- Costs = \$1,730 - \$3,460

Catfish boxes

- 16 nests produced fry
- 12,000 fry/box
- Equates to 192,000 fry
- Emerge from boxes at ~1”
- 12 Boxes = \$230



Management implications

- Lead to naturally produced channel catfish populations
- Eliminate stocking of channel catfish into some waters
- Reallocate hatchery produced channel catfish into other water bodies
- Reduce number of channel catfish that need to be produced
- Concentrate on raising fewer catfish to larger sizes (> 8")



Further Research

- Determine amount of available habitat in reservoirs prior to habitat implementation
- Determine fate of fry produced in spawning boxes
 - Recruitment to adulthood/population
- Determine the number of boxes needed to produce enough fry to create sustainable fishery
- Determine the variables most favorable for juvenile catfish recruitment



Acknowledgements

- Rob Brown and staff at Linesville State Fish Hatchery
- Mike Swartz, Phil Thomas, and Jake Gilliland
- PSU student volunteers for box construction
- Lance McDowell for transporting CC boxes to Linesville
- Rick Lorson, Bob Lorantas, and Brian Wisner for reviewing initial study proposal