Bluegill Management and Fishing in Pennsylvania

Prepared by R. Lorantas, D. Kristine and C. Hobbs
PFBC Warmwater Unit

2005 (stocking numbers updated after 2005)

Goal: Maintain or enhance bluegill sport fisheries through harvest management of naturally sustained bluegill populations and through habitat preservation and enhancement. Judiciously stock bluegills in compatible new and reclaimed habitats.

The bluegill occurs throughout Pennsylvania and was originally indigenous to the Ohio River and Lake Erie Drainage. The Ohio drainage includes the Ohio, Allegheny and Monongahela river drainages. Bluegills typically occupy reservoirs and lakes and slow moving rivers and streams within these drainages. Bluegill stocking by the Pennsylvania Fish and Boat Commission into the Delaware, Susquehanna, and Potomac river drainages lead to colonization of waters within these drainages, and bluegill are now self-sustaining throughout Pennsylvania. Most natural warmwater lakes and man-made reservoirs in Pennsylvania contain self-sustaining bluegill populations. In Pennsylvania, bluegills generally occur at lower densities in rivers and streams compared to lakes and reservoirs.

Bluegill populations, both indigenous and those that have become naturalized, are managed for sport fishing through harvest management, habitat management, habitat enhancement, and through stocking. Stocking typically occurs in conjunction with establishing self-sustaining bluegill populations in newly filled or newly reclaimed reservoirs that do not contain bluegill or contain low density bluegill populations. Stocking is typically carried out from one to several years to establish a self-sustaining population. Since 1978 annual stocking of fingerlings and adults have been made to establish bluegill populations in various waters. Bluegill populations in Pennsylvania waterways are not sustained through annual maintenance stocking (Table 1).

Table 1.	Bluegill stocking by the Pennsylvania Fish and Boat Commission				
Year	*Adult*	*Fingerling*	*Year*	*Adult*	*Fingerling*
1978	2,065	0	1993	2,400	11,980
1979	998	0	1994	1,550	8,231
1980	910	0	1995	771	28,250
1981	95	0	1996	330	0
1982	250	0	1997	800	18,470

1983	0	158,300	1998	8,000	142
1984	0	0	1999	250	0
1985	0	0	2000	410	265,400
1986	300	0	2001	500	12,000
1987	0	0	2002	650	22,299
1988	275	12,500	2003	50	18,900
1989	380	28,000	2004	50	228
1990	2,800	0	2005	0	6,500
1991	1,085	130	2006	50	25,123
1992	1,335	0			

With respect to harvest management, inland regulations accommodate harvest of up to 50 bluegills. The 50 panfish daily creel limit is a combined species creel limit, which includes bluegill and other species. No minimum size limit or seasonal restrictions apply. The bluegill is generally considered a prolific species, which has lead to liberal harvest rules. In some cases bluegill can become too dense and grow slowly which results in few individuals attaining desirable size. Liberal harvest is desired in these circumstances where less competition for limited resources leads to faster growth. Despite liberal harvest rules the average creel size of anglers completing their fishing trip in Pennsylvania who have kept at least one bluegill or pumpkinseed is 11 bluegill and/or pumpkinseed. Of course angler creels range from no bluegill kept to 50 kept. Low average harvest reflects an increased practice of catch and release fishing, however in some cases anglers may encounter few bluegill of desirable size in the population. Many small bluegills may be a result of slow growth, or may reflect angler removal of desirable size bluegill such that small size specimens remain.

Fishery biologists faced with many slow growing bluegills in reservoirs may elect to reduce refuge habitat through vegetation control, bolster predator densities or a combination of both. Here, planned over winter partial draw-down will freeze and desiccate near shore vegetation and serve to concentrate predators and prey over winter. The intent is to thin bluegill numbers to enhance their growth (size). In addition, predator density might be enhanced through stocking or though application of predator harvest restrictions such as Big Bass regulations. Biologists may also prescribe addition of habitat devices that attract panfish, these devices bolster angler harvest. What determines the specific course of action for a particular water body relates to features as diverse as the species of aquatic plants susceptible to control through water level management, to the ability of the water body to sustain increased density of predators. The Pennsylvania Fish and Boat Commission has an active corps of volunteers that assist in placement of fish attracting devices and habitat structures after an approved habitat plan has been developed. We encourage organizations interested in volunteering time to contact our Habitat Unit.

If the biologist is faced with angler harvest reducing density of desirable size bluegill, harvest restrictions may be applied though selective application of Panfish Enhancement regulations. In this program, bluegill, pumpkinseed and redear sunfish harvest is limited to specimens 7 inches or greater with a maximum daily harvest of 20 combined. The effectiveness of this size enhancement program in Pennsylvania is under evaluation. A variety of more specialized approaches to address these and other specific issues exist. Biologists regularly sample fish populations to measure fish density and size structure and examine fish habitat by measuring water productivity and aquatic vegetation density. Following such evaluations management plans are prescribed to enhance density and size structure of bluegill within the limits of the resource.

In association with these evaluations, growth of bluegill is examined by measuring length, weight, and taking a scale sample to determine age. In Pennsylvania, a 7 inch bluegill is approximately 4 years old (Fig. 1) and weighs 0.2 pounds, when bluegill are

9 inches in length they are approximately 8 years old and weigh approximately 0.5 pounds. We have tabulated average ages and weights for a variety of lengths of bluegill in Pennsylvania (Table 2). Anglers find these tables useful in approximating the weight and age of their catch. In standard biological collections, the decrease in relative or absolute number of bluegill at each age can be used to describe the total annual mortality rate of bluegill. On average the total annual mortality rate is 51%, which includes annual losses due to fishing and loss due to natural causes such as predation and disease. In addition to measuring losses biologists index production of bluegill by examining age structure. Growth of bluegill, recruitment of young bluegill to the population and loss of older bluegill are important considerations in developing harvest regulations that produce desirable size bluegill for harvest.

Figure 1. Average length of bluegills and pumpkinseeds collected by Fisheries Biologists in assessment gear in Pennsylvania (March-June).

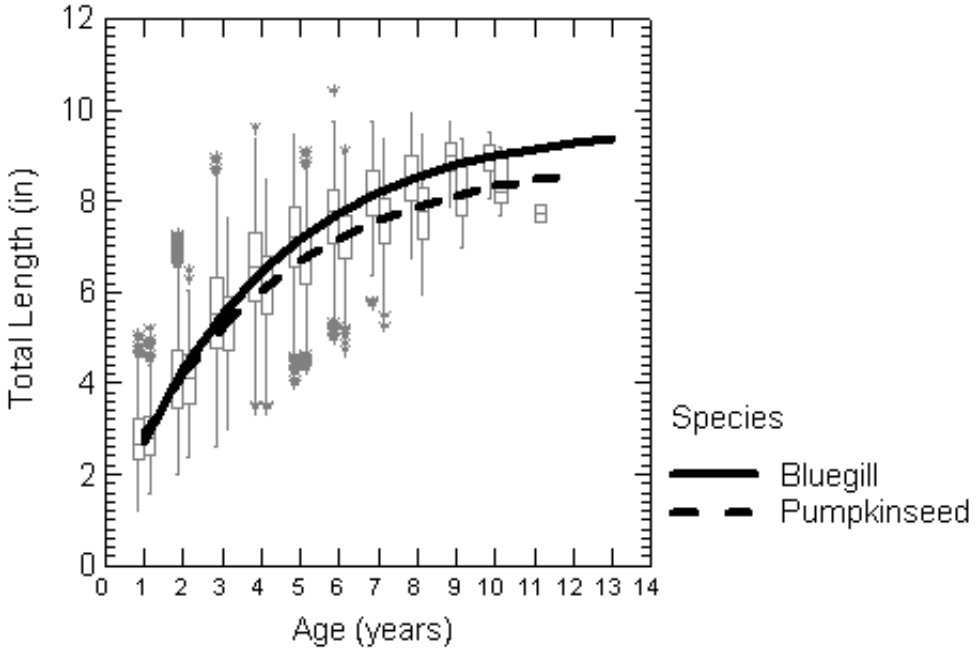


Table 2. Average weight and average age of bluegills at a given length (March-June).

Inches	*Pounds*	*Years*
4.5	0.1	1.8
5	0.1	2.2
5.5	0.1	2.6
6	0.1	3.0
6.5	0.1	3.5
7	0.2	4.1
7.5	0.2	4.7
8	0.3	5.5
8.5	0.4	6.5
9	0.5	7.9
9.5	0.6	10.0
10	0.7	15.1

10.5	0.8	> 15.1
11	1.0	> 15.1
11.5	1.1	> 15.1
12	1.3	> 15.1
12.5	1.5	> 15.1
13	1.7	> 15.1

Tabulating catch and harvest by anglers from various waterways is also essential in developing harvest regulations. Information derived from creel surveys coincidentally yields information of interest to anglers since seasonal peaks in catch occur for most species. These surveys show that bluegill can be caught most any time of year, generally though, highest catch per hour occurs in spring and early summer on medium and large size reservoirs (Figs. 2 and 3). Since bluegill form large colonies in spring in association with spawning and brood guarding, adults can be concentrated and quite vulnerable to anglers. Fall yields the highest catch rate on rivers (Fig. 4). Ice fishing catch rates rival catch rates of spring on large reservoirs (Fig. 3). With fishing destinations identified from our GIS maps and information describing the best seasons to catch bluegill anglers need only select an effective bait or lure. Most anglers were introduced to fishing by catching bluegill with a worm and bobber combination. Small jigs, flies, and surface poppers are attractive baits in spring and summer. Grubs are a popular live bait in winter. The abundance of bluegill in many waters across the state, the ability to catch them in summer fall and through the ice in winter makes them an especially popular panfish.

Figure 2. Average catch per angler hour of bluegill from medium size Pennsylvania reservoirs.

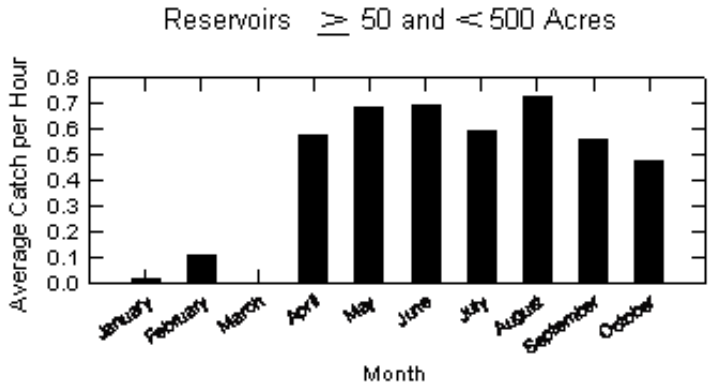


Figure 3. Average catch per angler hour of bluegill from large size Pennsylvania reservoirs.

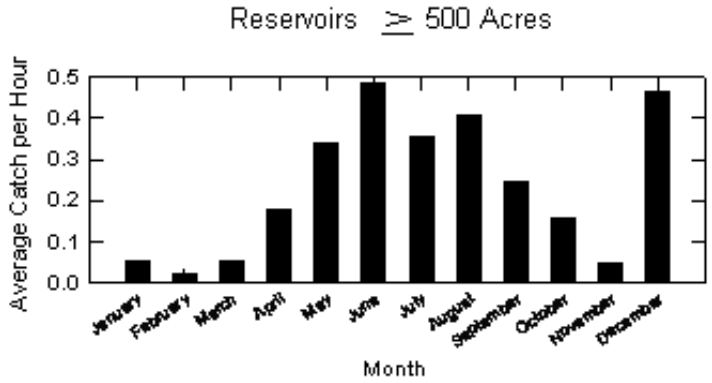
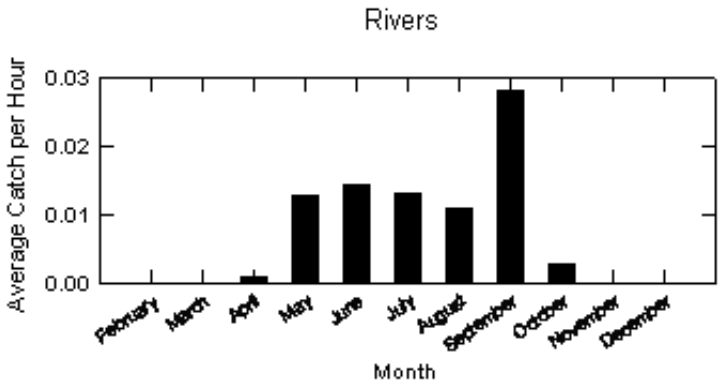


Figure 4. Average catch per angler hour of bluegill from Pennsylvania rivers.


Rivers
Average Catch per Hour
0.03
0.02
0.01
0.00
February
March
April
May
June
July
August
September
October
November
December
Month