Tempe Town Lake 2006 Spring Survey Results

Introduction and Methods:

On April 5, 11 and 12 2006, the Arizona Game and Fish Department (AGFD) conducted the annual Tempe Town Lake fish population survey. Six experimental gillnets (150 feet long) were set overnight for each of two evenings, and electrofishing was performed one evening at six sites.

Biologist Curtis Gill with a largemouth bass caught during electrofishing at Town Lake

Results:

A total of 5,500 fish were collected during the 2006 survey representing 14 species. In the 2005 survey we caught 526 fish, low numbers probably a result of floods that occurred during the winter of 2005. High flows caused the deflation of both dams, thus reverting the lake into a riverine environment for over two months. Data from the 2005 survey suggested that we lost approximately one third of the overall fish population in Town Lake. Once impounded again, the highly productive Town Lake benefited from the nutrient influx and continues to experience a "new lake effect", as noted by the abundance of threadfin shad and young-of-the-year bluegill and yellow bass collected in 2006. Differences in Catch Per Unit Effort (CPUE) for gillnetting can be attributed to the recent restocking of Israeli carp, stocked rainbow trout survival and the highly successful reproductive year from threadfin shad, bluegill and yellow bass.

Fish Presence and Abundance:

Largemouth bass (abundant) - Largemouth bass were the most abundant sport species collected (excluding forage and prey base species such as threadfin shad, yellow bass and bluegill) and represented 34% of the total catch. Populations rebounded significantly from the 2005 survey when only 78 bass were caught. During the 2006 survey, we captured 246 bass; the average fish was between 12-16 inches in length and weighed between 1-2 pounds. Current bag limits for largemouth bass at Town Lake are four fish per day with a 13-inch minimum length restriction. A calculated relative weight index (Wr, or a measure of fish population condition) of 108 suggests above average robustness of the bass sampled this year. Bass should continue to grow quickly due to the abundant prey base.

Eric Swanson, Urban Fish Prog. Mgr. with Israeli carp

Israeli carp (stocked/abundant) – This species has been stocked annually over the past 5 years by the City of Tempe to provide control of nuisance aquatic insects such as mosquitoes and midge flies. Fish are planted at 3 inches in size during the summer months. These fish, also known as "mirror" carp, accounted for 32% of the large bodied fish collected and were the second most abundant sportfish sampled this year. The largest Israeli carp weighed 6.5 lbs and measured over 2 feet in length. These fish represent fantastic angling opportunities for anglers looking to fight and land large fish.

Trout (stocked) –Seventy-four rainbow trout were collected during the survey and averaged between 8-11 inches. Rainbow trout are the only species that the Arizona Game and Fish Department stocks to establish a winter put-and-take trout fishery at Town Lake. From November 2005 to March 2006 at season total of 21,000 rainbow trout were planted biweekly. As water temperatures rise through the spring, most trout are expected to be harvested by anglers or will succumb to the warming water.

Channel catfish (common) - This popular sportfish is becoming well established in Town Lake. This year we caught 66 catfish with several dominant size groups represented. Flood events are probable reasons for the increased populations and successful spawning. Many fish (56% of total) in the 1-2 pound range and measuring 14-17 inches were captured. The largest catfish measured 21 inches and weighed over 4 pounds. Look for these fish to grow and flourish over the next few years and provide another great angling opportunity.

A 4 pound Channel catfish

Threadfin shad in gill net

Threadfin shad (prolific) – Shad were the most abundant fish species collected (estimated more than 3,700, 83 randomly measured). By taking advantage of nutrients supplied during the 2005 flood, the population has exploded. Most fish were in the 3-4 inch range representing a strong year class from the 2005 spawn. Some larger specimens measuring 7 inches in length were collected as well representing spawning age fish. Shad abundance indicates continued reproduction in the lake, thus providing a forage base for predators like the largemouth and yellow bass, larger trout, crappie and catfish.

Bluegill (prolific) - Bluegill were the third most abundant fish species collected (estimated more than 500, 69 randomly measured). A majority of these were caught electrofishing and averaged 3 inches in length. Only 25 fish (2% of sample) would be considered adults or 7 inches. This species appear to be stunting, probably due to an overabundance of shad that creates competition for food with young bluegill and lack of predation by largemouth bass.

Yellow bass (prolific) – Yellow bass from 2-4 inches were abundant. We caught 13 adult fish measuring 7 inches on average. Generally yellow bass do not grow over 1 pound or 11 inches in length in most reservoirs, and appear to not grow beyond 7 inches in Town Lake. There is ample prey base and these fish prefer open water in the middle of the lake and tend to school. The outlook for this species is to persist in the lake and provide a good angling opportunity for those anglers just trying to catch fish using mealworms and night crawlers.

Common carp (occasional) – A total of 23 common carp were collected. The largest carp was also the big fish of the survey, 28 inches in length weighing 11 pounds. Although not apparently reproducing to a significant degree, these fish should continue to grow in the lake system and provide "big fish" sporting opportunities for anglers.

Measuring large carp caught gillnetting

Redear sunfish (occasional) – Thirty of these members of the sunfish family were caught unexpectedly during this years' survey. Previously only a few individuals have been recorded in five years of survey history. Most likely this species came in via the Indian Bend wash during the floods of 2005. A majority of the redears sampled measured between 4-5 inches and would not be considered table fare yet, although one larger individual collected measured 7 inches in length. This species may take hold in the lake and provide another angling opportunity by next spring.

The following species were also sampled, but in low numbers:
Yellow Bullhead – 1, Flathead catfish – 4, Green sunfish – 2, Black crappie – 1,
Tilapia -3.

The following species were not sampled in this 2006 survey but have been present during fish surveys conducted 2001-2005:
Sonora sucker, Razorback sucker, Goldfish, Fathead minnow, Red shiner, Roundtail chub

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Species List: Common name, scientific name and species code name for fish species sampled.

Common Name	**Scientific Name**	**Species Code Name***
Largemouth	Micropterus salmoides	MISA
Channel	*Ictalarus punctatus*	ICPU
Flathead	*Pylodictis olivaris*	PYOL
Bluegill	*Lepomis macrochirus*	LEMA
Redear sunfish	*Lepomis microlophus*	LEMI
Green sunfish	*Lepomis cyanellus*	LECY
Yellow	*Ameuirus natalis*	AMNA
Threadfin shad	*Dorosoma petenense*	DOPE
Common carp	*Cyprinus carpio*	CYCA
Israeli carp	*Cyprinus carpio*	CYCAIS
Tilapia (sp.)	*Tilapia spp.*	TISP
Yellow bass	*Morone missisippiensis*	MOMI
Walleye	*Stizostedion vitreum*	STVI
Black crappie	*Pomoxis nigromaculatus*	PONI
Rainbow trout	*Onchorynchus mykiss*	ONMY

* Species Code Name is derived from combining the first two letters of the genus name and the first two letters of the species name. Example - Common name: largemouth bass, Scientific name: **Mi***cropterus* **sa***lmoides*, Species Code Name: MISA.