

**Illinois Department of Natural Resources  
Office of Resource Conservation  
Division of Fisheries**

**Fish Species Status Assessment and Management Plan for  
Alligator Gar (*Atractosteus spatula*) in Illinois  
2022**



The last vouchered Alligator Gar collected in Illinois waters (Cache-Mississippi R Diversion Channel - 1966) Courtesy of Brooks Burr

## Table of Contents

Introduction.....	1
Historical Distribution.....	1
Life History and Ecological Information.....	2
Characteristics.....	2
Diet .....	3
Reproduction .....	3
Causes of Decline.....	4
Alligator Gar Management in Illinois.....	4
Goal.....	4
Objectives.....	4
Alligator Gar Stocking Plan.....	6
Assessment of Stocking Success.....	6
Stocking Locations.....	8
Public Outreach and Education.....	8
Regulating Alligator Gar in Illinois.....	8
Review of Regulations Implemented in Other States.....	8
Program Highlights, 2009 – 2021 .....	10
References .....	21

## Appendix of Tables and Figures

Table 1.....	23
Figure 1.....	24
Figure 2.....	25
Figure 3.....	26
Figure 4.....	27

## **Introduction**

Alligator Gar (*Atractosteus spatula*) populations have been declining within their historic range for at least the past 50 years, and are considered to be extirpated from much of the northern reaches (Nature Serve 2015). Declines have been attributed to several factors, most notably over-exploitation and loss of important backwater spawning habitats from the construction of levees and lock-and-dams beginning in the early 1900s. While no single factor can be identified as the definitive cause for the decline, it is likely that a combination of these factors over time resulted in the extirpation of the Alligator Gar from Illinois.

The Alligator Gar was not regulated or protected in Illinois prior to 1977. From 1977 to 1994, the species was listed as a state-threatened fish under the Illinois Threatened and Endangered Species Act. In 1994, the Alligator Gar was delisted and considered to be extirpated.

This plan proposes efforts and activities necessary to successfully re-establish and extensively manage Alligator Gar populations in Illinois. The success of the plan will be documented through annual progress and achievement reports for each management objective. The plan is considered to be an evolving document and will be used as an adaptive management tool by Illinois Department of Natural Resources, Division of Fisheries.

## **Historical Distribution**

The Alligator Gar has been documented as far north as the Middle Illinois River generally below Peoria, Illinois (Figure 1, and 2; Poly 2001). Page and Burr (1991) defined the current range of the Alligator Gar as the Mississippi River Basin from southwest Ohio and southern Illinois, south to the Gulf of Mexico, and the Gulf Coastal Plain from the Enconfina River, Florida to Veracruz, Mexico (see Figure 1). Page and Burr (1991) listed the species as uncommon over most of its range, except in swamps and bayous in the extreme southern United States.

A comprehensive account of historic distribution of Alligator Gar in Illinois was published by William J. Poly in the Transactions of the Illinois State Academy of Science (2001). Poly (2001) states that the last Alligator Gar captured in Illinois (prior to reintroduction) was caught on hook and line from the Cache-Mississippi Diversion Channel about 2.5 miles northwest of Klondike, Alexander County in 1966. This specimen was about seven feet in length and weighed approximately 130 pounds and is vouchered in the Illinois Natural History Survey Fish Collection as a photographic record. Poly (2001) included a listing of all known records of Alligator Gar occurrences in Illinois and adjacent waters pre 1976 (Table 1 and Figure 2). Figure 3 provides a map location for all Alligator Gar occurrences documented in Illinois post the IDNR stocking start in 2010.

Wilbur M. Luce (1933) produced accounts of Alligator Gar in Illinois in “A Survey of the Fishery of the Kaskaskia River.” He stated that fishermen reported Alligator Gar were common at certain times near the mouth of the [Kaskaskia] river, with individuals measuring 10 feet in length and weighing 300 pounds having been seen in this vicinity. He personally observed Alligator Gar during the first week in August, 1930, seeing several of the gars about the piling at the mouth of the Kaskaskia and another one seen “rolling” on the surface of the water near

Chester. Luce (1933) went on to quote the following from Mr. Leslie Crow of Chester, who fished in the lower Kaskaskia River:

“About the first week in June, 1930, 75 to 100 gars entered an overflow pond on the river bottom about two miles above the mouth of the [Kaskaskia] river. The pond was connected to the river by a cut in the bank, through which the fishes entered. The water was two to four feet deep in this pond, which consisted of a number of acres of wooded bottomland with considerable underbrush. Many of these gars were judged to weigh 100 pounds, but a few of them were 10 feet long and may have weighed 300 pounds. The gars were spawning in this place, so that the shrubs, bushes, and other objects in the water were covered with eggs.”

Smith (1979) suggested that the Alligator Gar was never abundant in Illinois waters. However, the account from Luce (1933) and the Annual Report of the Game and Fish Conservation Commission of Illinois (GFCCI) for the Fiscal Year 1913-14 provide evidence that observations of Alligator Gar were occurring in Illinois.

## **Life History and Ecological Information**

### ***Characteristics***

The Alligator Gar is the largest of the gar species and second largest freshwater fish in North America, next to the White Sturgeon (*Acipenser transmontanus*). The current all-tackle record is a 302-pound, seven foot, six-inch-long fish taken from Texas in the Nueces River in 1953 (Moore 2007). Smith (1979) reports the largest Illinois specimen to be six feet, eight inches long. Poly (2001) lists several Illinois individuals longer, up to eight feet, seven inches long, with the heaviest individual weighing 176 pounds.

The Alligator Gar is identified from the other gar species by having a short, broad snout, heavier and broader body, and two rows of teeth in the upper jaw. The teeth are canine-like and can become worn and less sharp with age. The teeth can be highly variable with some teeth exposed on the outside of the mouth when closed. The other gar species native to Illinois typically have only one row of teeth in the upper jaw. However, some Shortnose Gar (*Lepisosteus platostomus*) specimens have been reported to have two rows of teeth in the upper jaw, leading to cases of misidentification. In which case, other morphological features are needed to positively identify the Alligator Gar. The color pattern is dark olive green dorsally and fading to gray or white ventrally with scales colored black to white for added camouflage. The dorsal, caudal and anal fins have black spots while pelvic and pectoral fins typically do not (AGTC 2011). Young Alligator Gar possess a blackish band along the mid-side and a narrow white stripe along the midline of the back (Pflieger 1997). Young gars can be difficult to identify to species by color pattern due to similarity and typically require a trained eye to compare all morphological characteristics.

The significantly larger adult size of the Alligator Gar is also a distinguishing characteristic compared to other gar species native to Illinois. The closest native gar species in size to the Alligator Gar would be the Longnose Gar (*Lepisosteus osseus*), which has a very unique long snout and would not be easily misidentified as an Alligator Gar. The current state hook and line,

and bowfishing records for all native gar species from IFish Illinois (2022) are:

Longnose Gar bowfishing - 32 lbs 3.2 oz, Kaskaskia River, St. Claire County, 2017  
Longnose Gar hook and line – 22 lbs, 1 oz, Ohio River, Massac County, 2006  
Shortnose Gar bowfishing – 6 lbs 4 oz, Lake Shelbyville, Moultrie, 2014  
Shortnose Gar hook and line - 6 lbs 15.2 oz, Horseshoe Lake, Madison County, 2018  
Spotted Gar bowfishing – 10 lbs 13.6 oz, Kaskaskia River, Clinton County, 2021  
Spotted Gar hook and line – 8 lbs 6.4 oz, Kidd Lake Canal, Monroe County, 2020

Morphologically, the closest gar species in Illinois to resemble the Alligator Gar is the Shortnose Gar. The Shortnose Gar is unlikely to exceed even 10 pounds in Illinois and yet, the Alligator Gar can exceed that size in less than two years of age (Grider 2013). The Spotted Gar (*Lepisosteus oculatus*) is dissimilar in having unique spots on the head, snout, and body. Therefore, gar observed by the general public in excess of approximately 10 pounds without Longnose or Spotted Gar characteristics should be suspected as Alligator Gar observations. Gar specimens in which identification is not certain should be reported to a fisheries manager for positive identification.

### ***Diet***

Alligator Gar are considered to be an opportunistic feeder with a diet likely dependent on the most readily available food source. It also is a scavenger of dead items when available (Bonham 1941, Goodyear 1967, Seidensticker 1987, Garcia de Leon et al. 2001, Brothers 2007). They are a “lie-in-wait” predator snapping at prey items that venture too close. In a 1987 study in Texas, Gizzard Shad (*Dorosoma cepedianum*) made up 26.4 % of their diet, with lower percentages of Channel Catfish (*Ictalurus punctatus*), Freshwater Drum (*Aplodinotus grunniens*), Bluegill (*Lepomis macrochirus*), Spotted Sucker (*Minytrema melanops*), White Bass (*Morone chrysops*), Largemouth Bass (*Micropterus salmoides*), Spotted Gar, Crappie (*Pomoxis spp.*), Lake Chubsucker (*Erimyzon sucetta*), Common Carp (*Cyprinus carpio*), and American coots (*Fulica americana*) also present (Seidensticker 1987). Todd (2005) states the diet to consist of fish (primarily shad and non-game fish) along with turtles, waterfowl, and small mammals of appropriate size. Although sportfish were abundant, Gizzard Shad were the only identifiable prey items found in diet samples collected from Alligator Gar stocked at Merwin Preserve, IL (Grider 2013). A literature review by Brothers (2007) also adds snakes, blue crabs (*Callinectes sapidus*), and various other invertebrates to the list.

### ***Reproduction***

Brothers (2007) noted that spawning times appear to be somewhat variable. Spawning in Oklahoma rivers and lakes was reported to be May through July, July and August in a Mexico reservoir, and April to June during seasonal flooding of bottomland swamps and lowlands by other sources (Brothers 2007). The observed spawning areas were shallow, slow backwaters with thick plant debris. Cattails, bulrush, and Bermuda grass were among the plant species listed as favorable (Brothers 2007). This is consistent with the Kaskaskia River account of them spawning in an overflow pond of bottomland forest with considerable underbrush present (Luce 1933). Brothers (2007) reports age at maturity to be 11 years for females and six years for males. It is also believed that Alligator Gar do not spawn every year (Brothers 2007).

## Causes of Decline

The combination of significant habitat modifications in the large rivers, reduced access to spawning sites, and historic eradication efforts are likely the main causes for the extirpation of Alligator Gar in the Mississippi River Basin (MRB), including Illinois' waters. It is likely that Alligator Gar were strongly affected by the draining of backwater lakes and swamps and the extensive construction of levees in the MRB that reduced connectivity to spawning habitats (Brothers 2007). The construction of locks and dams in the MRB has also likely changed backwater habitats important to Alligator Gar by altering natural hydrologic functions, seasonal flood pulses, and linear connectivity within the river systems that impedes fish migration (Kluender *et al.* 2016).

Over-fishing and previous eradication attempts of gar species are also likely key factors in the decline of the Alligator Gar (Scarnecchia 1992). Some overexploitation has been linked to its historical reputation as a huge and voracious animal, earning it names such as “despised pirate” (GFCCI 1914, Luce 1933). Gars, and particularly the large Alligator Gar, were suspected by fishermen and fisheries managers alike for decimating sportfish and commercial fish populations throughout much of the 20<sup>th</sup> Century. In Iowa, it was once illegal to release a captured gar alive (since repealed, Scarnecchia 1992). Fisheries managers and anglers used nets, electroshocking, dynamite, spears, and traps to kill them by the thousands (Scarnecchia 1992). The best results for such eradication efforts were obtained when gar congregated for spawning and reports indicate as much as 3.5 tons of gar being removed in one day (Scarnecchia 1992). Particularly in Illinois, Luce (1933) explains that it was customary to kill all captured gars. The Game and Fish Conservation Commission of Illinois, in their Annual Report for fiscal year 1913-1914, describe efforts “to seine thousands of these pirates from the water in the spring when they congregate on their spawning grounds.” The report further describes plans to promote and popularize smoked garfish as having similar edible qualities to the expensive sturgeon. Bounties were also paid to commercial fishermen for each garfish caught and placed upon the banks.

## Alligator Gar Management in Illinois

### *Goal*

The goal of the Alligator Gar reintroduction program is to re-establish sustainable populations of this fish species in suitable waters within the State of Illinois while providing recreational opportunities to anglers.

### *Objectives*

Objective 1 – Establish Alligator Gar as a sustainable sportfish species for hook-and-line and bow fishermen in Illinois.

Strategy 1 – Identify regulations that may be needed to manage a sustainable sport fishery for Alligator Gar in Illinois.

Strategy 2 – Develop educational and outreach information for the public about alligator gar and their re-establishment in Illinois.

Objective 2 – Re-establish populations of Alligator Gar throughout their native range and in approved locations in Illinois.

Strategy 1 – Identify stocking locations that potentially provide suitable habitat and forage base for the survival of stocked Alligator Gar.

Strategy 2 – Obtain Alligator Gar fry, when available, from the USFWS Private John Allen National Fish Hatchery in Tupelo, Mississippi.

Strategy 3 – Annually stock non-vulnerable (approximately 12-inches and larger) Alligator Gar into approved receiving waters.

Strategy 4 – Annually mark all stocked Alligator Gar prior to their release into any receiving waters that are not permanently separated from open waterways.

Objective 3 – Develop rearing techniques and the associated rearing locations to effectively raise Alligator Gar to non-vulnerable sizes.

Strategy 1 – Use, as reference, the culture knowledge for Alligator Gar developed at the USFWS Private John Allen National Fish Hatchery.

Strategy 2 – Use intensive culture as long as necessary to ensure maximum initial survival.

Strategy 3 – Use extensive culture as long as necessary to produce fast growing, non-vulnerable size fish.

Strategy 4 – Cooperate and use agreements with other university, scientific survey, and private hatcheries in Illinois for the production and research on Alligator Gar culture techniques.

Objective 4 – Develop standardized protocols to accurately collect biological data on survival, growth, habitat usage, and feeding habits of Alligator Gar in Illinois.

Strategy 1 – All Alligator Gar stocked into Illinois waters that have the potential to disperse long distances should be tagged with a passive integrated transponder (PIT) tag near the dorsal fin to allow for individual tracking of fish over time in an effort to determine movement behavior.

Strategy 2 – A standardized sampling event will be conducted annually in an attempt to collect Alligator Gar in each stocking location.

Strategy 3 – All collected Alligator Gar will be measured in total length to the nearest millimeter (mm), pelvic girth to the nearest mm, and weight to the nearest gram.

Strategy 4 – The collection of dietary habit data will be attempted from collected Alligator Gar in an effort to evaluate the role of the Alligator Gar as a keystone species and its ability to influence fish populations in a positive direction towards greater biodiversity, food web balance, and stability.

Strategy 5 – Coordinate with universities, scientific surveys, and nongovernmental organizations (NGO's) for assistance in tracking stocked Alligator Gar.

Objective 5 – Identify, manage, and protect habitat necessary for Alligator Gar survival and recruitment.

Strategy 1 – Identify and evaluate all aquatic areas in Illinois that have the potential habitat requirements necessary to support the establishment of a self-sustaining population of Alligator Gar.

Strategy 2 – Work with partners, such as the Army Corps of Engineers, to restore important backwater and side channel habitat areas and improve lateral connectivity to these habitats.

### ***Alligator Gar Stocking Plan***

Non-vulnerable sizes (approximately 12-inches and larger) of Alligator Gar will be stocked annually into waters approved by the Illinois Department of Natural Resources (IDNR) Fisheries Division at a rate of up to one per acre. The stocking rate used is based on the “Species Management Plan for Muskellunge”. A stocking rate comparable to Muskellunge was used solely as a starting point given the size and life history natures of the two fish species. The stocking rate for Alligator Gar may be adjusted, as needed, based on future research and monitoring. Alligator Gar fry will be obtained, as available, from the USFWS Private John Allen National Fish Hatchery in Tupelo, Mississippi (and possibly other hatchery sources if available in the future) and reared to non-vulnerable size for stocking.

### ***Assessment of Stocking Success***

Alligator Gar will be marked prior to their release into any receiving waters with connectivity to open systems. An attempt to sample Alligator Gar will be conducted annually in each stocking location. Alligator Gar sampling is still an evolving science. Current methods use floating, large mesh, multi-filament gill nets constructed of #21 twine and dyed black. Gill net mesh sizes of three inches, four inches and five inches (bar mesh measure) have been used with success to catch larger Alligator Gar (Brinkman 2008, Ferrara 2001, Layher and Phillips 2000). The multi-filament gill nets with three-inch bar mesh proved capable of catching the alligator gar at approximately 34 inches in length. Trap nets with 1.5-inch bar mesh and multi-filament gill nets with three-inch bar mesh measure were used during sampling efforts at Merwin Preserve, IL



(Grider 2013). The leads of the 1.5-inch bar mesh trap nets proved capable of catching Alligator Gar at approximately 24 inches in length.

Future monitoring attempts in Illinois will use floating, multi-filament gill nets dyed black. These nets will use bar mesh measurements that include 1.5-inch, three-inch, four-inch and five-inch. The size selection of the bar mesh measurement will correspond to the effective size for the potential length of the year class or classes of Alligator Gar present at the sampling site. A general guide for mesh size will be 1.5-inch to three-inch for alligator gar from 24 to 34 inches in length. For Alligator Gar over 34 inches in length a range of mesh sizes from three-inch, four-inch, and five-inch should be used for sampling.

Results of previous Alligator Gar sampling suggest water temperatures should be approximately 64° to 73° F in an effort to reduce heat stress and mortality (Grider 2013). Alligator Gar should be collected from gill nets within one hour or sooner, depending on the water temperature. All sampled fish should be measured in length to the nearest mm, pelvic girth to the nearest mm, and weight to the nearest gram. Every fish should be scanned with a PIT tag reader for potential tag identification.

Assessment results will attempt to determine year-to-year survival of Alligator Gar in stocked water bodies. Age and growth data will be used to assess body condition of the stocked Alligator Gar. Each Alligator Gar stocking and sampling location should also have a pulsed-DC electrofishing sample completed to help provide an evaluation of the diversity and density of the fishery present. This data may provide information to help guide decisions regarding stocking rates and forage base suitability within the assessed water bodies. Eventually, assessments will be used to document and monitor spawning success and recruitment dynamics.

The collection of food habit data will be attempted from sampled fish using gastric lavage or dissection if the specimen is deceased. Non-lethal methods to collect diets still need to be perfected for large Alligator Gar as standard lavage techniques have proven difficult in previous studies (Grider 2013). Additional diet studies would provide further information to our knowledge of this species and its feeding habits. This information would help with better selection of stocking sites based on the existing forage available, feeding habits of Alligator Gar, and size selection of Alligator Gar to be stocked.

Coordination with universities, scientific surveys, and NGO's will be sought to help track stocked Alligator Gar by telemetry. Tracking with ultrasonic transmitters would add significantly to the costs of such a study, but it would provide more detailed information on mortality, habitat preferences, spawning, and wintering areas. Telemetry tracking information may also prove useful in helping to define timing and use of critical habitat.

Creel surveys should also be conducted and reviewed on a regular basis to determine angler use and success. The creel surveys may provide information necessary for setting harvest regulations, adjusting stocking rates, and identifying angling pressure. The surveys could be conducted at boat ramps of stocking locations, bow fishing events, surveys by mail, or an electronic form on the IDNR website that can be easily submitted by the public.

### ***Stocking Locations***

The priority stocking locations for Alligator Gar would be areas with public access under IDNR management, such as State Fish and Wildlife Areas, within the approximate historic geographic range of the Alligator Gar (see Figure 3) that best reflect the habitats necessary for optimum success. These areas would provide the best access for managers and researchers to conduct surveys of the population and allow angler opportunity. Key habitat characteristics should include large to medium sized rivers and their backwaters or oxbows with seasonal connectivity, deep water refuge of at least 10 feet for overwintering, macrophytes or seasonal flooded vegetation, and an abundant prey base (such as Gizzard Shad) determined to meet forage criteria and reflect management goals for the site. Large to medium sized river systems of significant interest for stocking include the Big Muddy, Cache, Illinois, Kaskaskia, Mississippi, Ohio, and Wabash rivers. Man-made lakes and isolated waters that best reflect management goals for the site, research needs, and angling opportunity for the general public will be considered by the Fisheries Division on a case-by-case basis.

### ***Public Outreach and Education***

A public outreach campaign will be implemented to continue to inform the public about Alligator Gar, including identification and harvest regulations. The Alligator Gar may carry a negative perception with some members of the general public. Outreach and education efforts will address any concerns based on misunderstandings about the species. Although this reputation is unfounded as a destroyer and/or competitor of the mainstream sportfish species, a continuing outreach campaign is needed to educate the public to the benefits of this fish species and the rationale for its reintroduction. (see Figure 4)

### ***Regulating Alligator Gar in Illinois***

The Division of Fisheries will adopt recreational harvest regulations as necessary in future years as population distribution and density dictate. Anglers will be encouraged to report any Alligator Gar harvest or catches to the IDNR. An informational guide will be created for the annual regulation book, bow fishing groups, and the IFISHIllinois.org website. Requested information will help biologists to collect data from anglers and bow fishers regarding fishing pressure and harvest.

In Illinois, commercial fishing of Alligator Gar is not permitted as they are protected under Administrative Rule 830, Section 830.60 a) 10). Gar species in general are seldom targeted as a commercial fish, but are caught incidentally with trammel nets, gill nets, hoop nets and trot lines. Alligator Gar would be more difficult to distinguish from Shortnose Gar at a small size, but would be relatively easy to distinguish once they reach adulthood as discussed previously. One potential solution, should a market develop for gar, would be to put a maximum size limit on all gar species to provide the Alligator Gar with protection once they mature.

### ***Review of Regulations Implemented in Other States***

Alabama – Two fish per day. Alligator Gar are currently considered a “Regulated Nongame” fish and a “Species of Moderate Conservation Concern” in Alabama. Before 1992, no limits protected Alligator Gar, which is actually classified as a “nongame” fish. Based on observations by biologists and interviews with commercial and sport anglers alike, the Alabama Department of Conservation and Natural Resources made a decision to place a two fish per angler per day

limit on October 1, 1992 (Alabama Regulation 220-2-.45). This conservation tool protects the adult population from excessive harvest by commercial anglers.

Arkansas - Creel limit of one Alligator Gar per 24-hour period. Harvest of Alligator Gar greater than 36 inches is restricted from noon, May 1<sup>st</sup> until noon, July 1<sup>st</sup>. The justification for this regulation is to prohibit take of large, adult fish that are vulnerable during the spawn. Anglers must obtain a free permit to harvest any Alligator Gar. Required information associated with obtaining the free permit will allow biologists to collect data from anglers regarding fishing pressure and harvest (Arkansas Game and Fish Commission 2011).

Florida - Strict no harvest. In 2006, FWC Commissioners decided no one may take or possess Alligator Gar in Florida waters without a special permit. The FWC may issue these permits for scientific research and management efforts.

Indiana – No Protection. Considered an Extirpated species.

Kentucky – No harvest allowed. The Alligator Gar is listed as endangered by the Kentucky State Nature Preserves Commission and is listed as a "Species of Greatest Conservation Need" by the Kentucky Department of Fish and Wildlife Resources Wildlife Action Plan.

Louisiana – No protection, considered a stable population.

Mississippi - Two fish per day. No harvest allowed in specific water areas. Designated as a non-game gross fish.

Missouri – No harvest allowed. Critically imperiled. Create a unique and trophy sport fishery, MDNR recommends angler catch and release.

Ohio – No protection, considered an extirpated population.

Oklahoma – One fish per day. Alligator Gar may be caught by use of rod and reel, trotline, and throwline. Alligator Gar taken by bow and arrow, gigs, spears, or spear guns cannot be released. Alligator Gar caught and placed on a stringer cannot be released (a practice called culling). Harvest must be reported to the Wildlife Department (580) 924-4087.

Tennessee - No harvest allowed, must be returned to water immediately. Species in need of management, Create a sport fishery in selected waters in the future.

Texas – One fish per day, no minimum length. Restrictions to Protect Spawning Alligator Gar: When conditions such as water temperature and flooding events would be conducive for spawning of Alligator Gar, the TPWD Executive Director may temporarily prohibit taking or attempting to take Alligator Gar in a specified area for a period not to exceed 30 days. Conditions that would be used to invoke this action include water temperatures between 68 and 82°F and occurrence of moderate flood levels as defined and reported by U.S. Geological Survey gauges. Notice of this action will be posted on this web page, distributed to print and broadcast media, and shared through appropriate social media accounts. The notice will specify the area to

be closed and when lawful fishing for Alligator Gar may resume. During May, fishing for, seeking, or taking Alligator Gar is prohibited in the portion of Lake Texoma within the boundaries of Hagerman National Wildlife Refuge and from the U.S. 377 bridge upstream to the IH 35 bridge. No additional restrictions for Alligator Gar are in effect at this time.

## **Program Highlights, 2009 - 2021**

### **2009**

- A Proposal for the Reintroduction of Alligator Gar (*Atractosteus spatula*) in Illinois was completed by the IDNR Division of Fisheries.

### **2010**

- A total of 9,500 Alligator Gar fry were received from USFWS, Private John Allen National Fish Hatchery. Mortality of 44% occurred at Jake Wolf Fish Hatchery. A total of 5,400 Alligator Gar at two inches long were transferred to rearing ponds at Banner Marsh State Fish and Wildlife Area.
- The Banner Marsh Rearing Ponds were harvested in August, September, and October. Forty-three fish at an average size of 310 mm (12.2 inches) were stocked into Duck Island Little Lake at the Rice Lake SFWA. Twenty fish at an average size of 327 mm (12.9 inches) were stocked into Lake #29 at Banner Marsh SFWA. Thirty-three fish at an average size of 381 mm (15.0 inches) were stocked into the Hennepin-Hopper Lake Restoration Site.

### **2011**

- At total of 8,000 Alligator Gar fry were received from USFWS, Private John Allen National Fish Hatchery. Mortality of 50% occurred at Jake Wolf Fish Hatchery. The Alligator Gar were transferred to two private hatcheries, Logan Hollow Fish Farm and Cordova Exelon. Logan Hollow produced 144 fish with an average size of 536mm (21.1 inches) and 882 grams (1.9 pounds). All fish were PIT tagged and stocked at Spunky Bottoms (100) and Rice Lake SFWA (44). Cordova Exelon produced 45 Alligator Gar and held for overwintering to grow to non-vulnerable size.
- In early June, 83 Alligator Gar were acquired from USFWS at an average length of 560mm (22 inches). All were PIT tagged and stocked at Powerton Lake SFWA.
- Overwinter survival documented at Banner Marsh SFWA with two collected using pulsed-DC electrofishing. This 2010 year class fish reached 38 inches by September 2011.

### **2012**

- The USFWS had a very poor spawn in 2012 and IDNR received no fry.

- Forty-five fish from 2011 fry rearing were overwintered at the Cordova Exelon facility at an average size of 203 mm (8.0 inches). Thirty-seven of these fish survived to 2012 and were raised in raceway culture to an average size of 388 mm (15.2 inches). These fish were stocked into a large connected oxbow complex of the lower Kaskaskia River in southwest Illinois in September 2012. This river is a direct tributary of the Mississippi River south of St. Louis, and one of the last historical known spawning sites in Illinois.
- Two plus (2+) year old survival was documented with the collection of two fish in the Banner Marsh stocking site by D.C. electrofishing. These 2010 year class fish had reached 800 mm (31.4 inches) by November of 2012.
- Public information and education on the IDNR Alligator Gar reintroduction in Illinois was completed with talks at sport shows, radio interviews, and newspaper articles in 2012. The overall attitude of the public has been favorable, curious, and excited about a large predatory fish that might eat Asian carp.
- Thesis research was completed on Alligator Gar reintroduction into Spunky Bottoms by Nate Grider. On September 29, 100 Alligator Gar with an average size of 536 mm and 882 grams (21.1 inches and 1.94 lbs.) were PIT tagged and stocked in Merwin Preserve Spunky Bottoms owned by The Nature Conservancy. This wetland is roughly at the northern extent of Alligator Gars' recorded historic range. The site is approximately 1,200 acres when fully flooded and is separated from the Illinois River by a levee. The habitat consists of abundant emergent aquatic vegetation and a network of “deep” ditches left from previous farming attempts. The goals of the study were to collect baseline data for Illinois on Alligator Gar growth rates, fitness, and diet. Monthly surveys were conducted from May through October with assistance from Rob Hilsabeck, Trent Thomas, and others. Seventeen Alligator Gar were collected (one individual twice), representing 0.25% of total catch (N = 6,912). The largest individual grew from egg to 959 mm and 6,364 g (38 inches, 14 lbs.) in only 17 months. Growth rates from May to September 29 for young-of-year averaged 3.6 mm and 5.9 g per day (before stocking), and 1.8 mm and 7.3 g during the 2012 growing season in Spunky Bottoms. Gastric lavage was used for the diet study. Alligator Gar stomachs were 53% empty, 29% contained Gizzard Shad, and 18% were unidentifiable fish. Overall, the study was successful in providing needed information to aid conservation efforts in the Alligator Gars' historic northern range.

## 2013

- Illinois received approximately 20,000 fry from the USFWS in 2013. The initial fry mortality was low this year. A total of 5,399 fish were stocked to receiving waters by the fall.
- The levee at Spunky Bottoms was breached during 2013 flooding. A survey was attempted at this site in the fall with gill nets. No Alligator Gars were collected, and this population is believed to have either escaped to the Illinois River, succumbed to low dissolved oxygen during the winter of 2012/2013 (the 2012 drought drastically reduced water levels), or a few may remain at Spunky Bottoms in low numbers. Future surveys should be attempted.

- Ten thousand (10,000) fry were started at the Jake Wolf Hatchery. On July 10, 4,500 of these fish were stocked into a restored Illinois River backwater lake, Hennepin-Hopper. It is currently isolated from the river. These fish averaged four inches in length. Seven hundred (700) additional four-inch fish were transferred to the Cordova Exelon Hatchery for further rearing. In September, 11,657 of these fish at an average size of 12.8 inches were stocked into the Sanganois State Fish and Wildlife Area. This backwater complex is seasonally connected to the Illinois and adjacent Sangamon Rivers. All of these fish were intensively reared on pelleted food.
- Ten thousand (10,000) fry were started at the Logan Hollow Fish Farm. At two inches in length, approximately 7,500 fish remained and were moved to a large rearing pond with Fathead Minnows (*Pimephales promelas*) and Gizzard Shad forage. On November 1, 242 fish at an average length of 19 inches were PIT tagged and stocked into two connected oxbows of the lower Kaskaskia River. It is believed that cannibalism was the major mortality on these fish in the rearing pond.
- The IDNR recaptured the largest stocked Alligator Gar on July 7 while electrofishing for State Fair display fish. The Powerton Lake fish was 49.2 inches long, 19.3-inch girth and 27 pounds. It was initially stocked on May 9, 2011 as a two-year-old fish at 21.4 inches long and three pounds. Powerton Lake is a 1,400-acre warm water reservoir for a coal fired electric plant. Threadfin Shad, Gizzard Shad, and Silver Carp have strong populations in this lake.
- Two Alligator Gar were caught, photographed and released by a gar fishing group (garfishing.com). The fish were from the 2011 stocking into the Rice Lake State Fish and Wildlife Area. Both fish were approximately 715 mm (28.1 inches) in length. The anglers had been directed to this site in an effort to help collect recapture data for the IDNR. The IDNR had made three separate, unsuccessful attempts to recapture Alligator Gar from this site with trap nets and a variety of gill nets. It was the second trip by the anglers to the site.
- Public information and education on the IDNR Alligator Gar reintroduction in Illinois was again completed with talks at sport shows, radio interviews, and newspaper articles in 2013. The Shedd Aquarium in Chicago expressed an interest to develop a public outreach and education display on Alligator Gar in 2014.

## 2014

- Illinois did not request or receive fry from the USFWS in 2014.
- A complete low oxygen fish kill occurred in the winter of 2013/2014 in a shallow fertile pond that contained a sportfish population and three Alligator Gar. Two of the recovered Alligator Gar were 38 inches long at two years, eight months, and the third was 44 inches long at three years, eight months. The northern half of Illinois experienced a high amount of low oxygen fish kills in fertile, shallow bodies of water over the winter of 2013/2014. An extended period of ice coverage with a snow layer on top made this the

highest reported year of winter fish kills since 1977 to 1978. Future management and stockings in Illinois will consider this scenario when evaluating potential stocking sites.

- Two Alligator Gar at approximately 60 inches long were observed in August 2014 while electrofishing the intake ditch at Powerton Lake

## 2015

- Illinois did not request or receive fry from the USFWS in 2015.
- The USFWS reported an Alligator Gar was captured by a Missouri commercial fisherman in January in Angelo Chute, adjacent to Cairo, Illinois, a side channel area at the confluence of the Mississippi and Ohio Rivers. This fish may have originated from the Kentucky reintroduction program.
- On August 7 a bow fisherwoman harvested an Alligator Gar in the lower Kaskaskia River. It was a PIT tagged fish from the 2013 IDNR Alligator Gar stocking into the lower Kaskaskia River. Fish #0A180D7501 was 18.9 inches long and 1.14 pounds on November 1, 2013 when stocked as a six-month old fish. On August 7, 2015 it was 26.5 inches long and four pounds.
- A total of nine Alligator Gar were collected from Powerton Lake SFWA with an average length of 51 inches and 36.3 pounds each. Eight fish were collected in the first 15 minutes with the new Alligator Gar, multifilament gill nets, and one more with pulsed-DC electrofishing. They were six-year-old fish acquired from USFWS in 2011 (they were age two when acquired). All 78 were PIT tagged when stocked in Powerton Lake in 2011. This collection was more than 10 percent of the original 78 stocked. These fish had moved to an interior intake canal at this warm water power plant lake. This interior canal has no fishing access, and a constant supply of forage of Gizzard Shad and Silver Carp (*Hypophthalmichthys molitrix*). This should serve as an excellent Alligator Gar collection site in the future. Gastric lavage will be attempted on any collected Alligator Gar at this site in 2016.

## 2016

- Illinois received 20,000 fry from the USFWS on May 3. A total of 10,000 were received at Little Grassy Hatchery and 10,000 at Jake Wolf Hatchery. The 10,000 received at Little Grassy were immediately transferred to Logan Hollow Fish Farm. Both batches of fry suffered complete mortality due to an aggressive fungal or bacterial outbreak. Both hatcheries need to determine a better start plan for the fry and the reason for the outbreak. Initial water temperatures and a treatment protocol need to be discussed with successful hatcheries.
- Illinois received approximately 1,700 six-inch Alligator Gar from the Pvt. John Allen Hatchery on July 13. The fish were raised at the Cordova hatchery on pelleted floating food in raceways until September. On September 20, 1,650 Alligator Gar were

transferred from the Exelon Hatchery to Jake Wolf Hatchery for PIT tagging and stocking. The average length was 265 mm and average weight was 84g. Six hundred Alligator Gar were stocked directly into Powerton Lake near Pekin, Illinois with no PIT tags. Three hundred PIT tagged fish were stocked into Horseshoe Lake, at Horseshoe Lake State Park in Madison County. Three hundred PIT tagged fish were stocked into the Lower Kaskaskia River in the State Fish and Wildlife Area near Redbud, Illinois. A large oxbow and wetland complex off of the main navigation channel was the stocking site. Three hundred PIT tagged fish were stocked into the Sanganois State Fish and Wildlife Area.

- A gar management resolution was passed by the Illinois House of Representatives. The initial proposed resolution was created by the Illinois Environmental Council, the Sierra Club and the Environmental Law and Policy Center. The IDNR Division of Fisheries then worked with these groups to create a resolution that supported the management of gar populations (including the reintroduction of the Alligator Gar) in Illinois by the IDNR.
- Personnel with the IDNR Division of Fisheries and the Exelon Hatchery completed multiple interviews with print and television media on the reintroduction of Alligator Gar in Illinois. The overall response was positive and good biological information was provided to the public. Countering the exaggerated media hype of using Alligator Gar as a control of Asian carp was a part of the public education effort.
- A public meeting was held by IDNR Fisheries on July 21 in New Athens on the Alligator Gar stocking in the Kaskaskia River. The meeting was requested by State Representative Jerry Costello II (D-Red Bud) to provide background information to a local recreational group and marina owner on the Kaskaskia River. A presentation of the history, biology and the reintroduction plan for Alligator Gar was provided to the public attendees. A question and answer session was also held. The most notable questions included potential Alligator Gar attacks on humans and why stock a non-sport fish known to local anglers as a “trash fish.”
- Powerton Lake is a power plant cooling lake with extremely warm water temperatures compared with other water bodies in Illinois. On August 10, a total of 11 Alligator Gar were collected with an average length of 52.4 inches and 41.6 pounds each. Ten fish were collected in the first 15 minutes with the Alligator Gar gill nets, and one more with pulsed-DC electrofishing. These were the seven-year-old fish received from Tupelo, MS. All of the fish were PIT tagged and stocked as two-year-old fish on May 9, 2011. This collection was more than 10 percent of the original 78 stocked fish. Gastric lavage was



attempted on two fish with no success. The high water and air temperatures caused us concern for the stress on the fish while attempting to open their jaws.

## 2017

- On May 5<sup>th</sup>, FedEx delivered 20,000 fry to Jake Wolf Fish Hatchery. A number of the boxes were in rough shape upon arrival and three of the bags had collapsed. The hatchery water temperature was 68F and matched the temperature in the boxes. The fry had yet to swim up, but should have done so within a few days. We apparently had the failure to thrive batch as they were exceptionally reluctant to swim up and start feeding. We started to sprinkle Otohime feed on the fry after a few days, but that didn't coax them off the bottom. Approximately half of the fry died in the first 2 weeks and the mortality continued. On June 21<sup>st</sup>, the Exelon Cordova Hatchery took possession of the 3815 remaining fish, which were graded out into 3 size categories. Mortality on the small fish was nearly 100% by the end of the summer, with lower, but still high mortality rates for mediums, and near normal mortality rates for the larger fish. The low water temperatures in the Illinois hatcheries in early May could be part of the issue with the initial slow growth and mortality. In 2018, an attempt will be made to provide heated water to elevate the overall starting water temperatures as well as throughout the summer grow out.
- Illinois received 945 six-inch alligator gar from the Mammoth Springs NFH on July 26<sup>th</sup>. The Illinois Cordova Exelon hatchery personnel drove to Mammoth Springs NFH in Arkansas and transported the fish back to their hatchery. The fish were raised at the Cordova hatchery on pelleted floating food in raceways through October. On October 18<sup>th</sup>, 1048 alligator gar were transferred from the Exelon Hatchery to Jake Wolf Hatchery for PIT tagging and stocking. The average length was 216mm and average weight was 50g. Eighty fish were held back at the Exelon facility for further grow out.
- On October 24<sup>th</sup>, 500 PIT tagged fish were stocked into the Lower Big Muddy River near Grand Tower Chute in Union County, Illinois. 500 PIT tagged fish were also split stocked into the Lower Kaskaskia River. The locations of these stockings were near river mile 1.1 in Randolph County, and near river mile 27 in St Clair County, Illinois.
- The Alligator Gar Management Plan for Illinois was completed by the IDNR Division of Fisheries and approved by the IDNR administration in April of 2017.
- Personnel with the IDNR Division of Fisheries and the Exelon Hatchery completed multiple interviews with print and television media on the reintroduction of Alligator gar in Illinois and the management plan. The overall response was positive and good biological education was

provided to the public. The exaggerated media hype of utilizing the Alligator gar as a cure for the control of Asian carp continued to be a part of the public education.

- 3 alligator gar collections were confirmed by IDNR Fisheries in Illinois in 2017. On 5/13/2017, a bow fisherman harvested an alligator gar from Lylerla Lake, Union County near Reynoldsville, Illinois. The fish had a total length of 1105 mm, girth of 395 mm and a weight of 5905 grams. The fish contained no PIT tag or Coded Wire tag. On 5/21/2017, a bow fisherman harvested an alligator gar from Lusk Creek, Pope County, upstream of Golconda, Illinois. The fish had a total length of 1626 mm, girth of 630 mm and a weight of 22,768 grams. The fish contained a coded wire tag, but no PIT tag. This fish is presumed to be a Kentucky stocking. On 8/24/2017, the IDNR Asian Carp Crew collected an alligator gar by trammel netting from the Starved Rock Pool of the Illinois River, LaSalle County, downstream of Ottawa, Illinois. The approximate length of the fish was 1143 mm, and it was released immediately after pictures were taken. This record is likely the furthest north for an alligator gar in the United States. The fish is presumed to have originated from stockings in the lower Illinois River.
- Illinois DNR coordinated with the Kentucky Fish and Wildlife and the Indiana DNR on an alligator gar captured by a bow fisherman in the White River, Indiana in early June. The fish contained a wire coded tag, which confirmed it is most likely a Kentucky stocking. It was 1615 mm in length and weighed 24,970 grams. This fish is believed to have traveled upstream from Kentucky via the IL/IN state border in the Wabash River, and into the White River. A journey roughly estimated to be over 150 miles.
- Powerton Lake is on the warm water temperature extreme for water bodies in Illinois. On 8/7/2017, a total of 12 alligator gar were collected with an average length of 1354 mm and 18,725 grams each. 11 fish were collected with the 3" and 4" alligator gar gill nets, and 1 more with DC electrofishing. These are the 8 year old fish that Trent Thomas and Rob Hilsabeck came down to Tupelo and picked up from Mr. Campbell. All of them are PIT tagged and were stocked as 2 year old fish on 6/9/2011. In 4 sampling trips over 4 years, we have collected 30 of the original 78 stocked fish. These fish had moved to an interior intake canal at this warm water power plant lake (coal fired). This interior canal has no fishing access, and a constant supply of forage of gizzard shad and silver carp. Gastric lavage was not attempted with the high water and air temperatures.

## 2018

- Illinois IDNR received no Alligator Gar fry to rear from the USFWS in 2018. The USFWS had a very poor production year on fry from the brood fish collection in 2018.
- The Illinois Cordova Exelon hatchery had 80 slow growing Alligator Gar from the 2017 year class that they overwintered and continued to grow out in 2018. The fish were raised at the Cordova hatchery on pelleted floating food in raceways through September. On September 24<sup>th</sup>, the surviving 37 Alligator Gar were transferred from the Exelon Hatchery to Jake Wolf Hatchery for

PIT tagging and stocking. The average length was 294 mm (11.6 inches). These fish were then stocked into Horseshoe Lake State Fish and Wildlife Area in Alexander County, Illinois.

Horseshoe Lake is an old Mississippi River oxbow that is 1890 acres in size with a maximum depth of 6 feet. In recent years it has been occasionally reconnected to the Mississippi River with the historic floods and levee failures. This site is in the southern tip of Illinois and adjacent to Missouri and Kentucky.

- A statewide administrative rule is proposed for Illinois to start on 4/1/2019. The harvest regulation will allow the creel of 1 Alligator Gar per 24 hour period, and no commercial harvest allowed. Anglers will be encouraged to report any Alligator Gar harvest or catches to the IDNR. An informational page is included in the annual regulation book and the IFISH website. Requested information will help biologists to collect data from anglers and bow fishers regarding fishing pressure and harvest.
- Personnel with the IDNR Division of Fisheries and the Exelon Hatchery completed multiple interviews with print and television media on the reintroduction of Alligator Gar in Illinois and the management plan. The overall response was positive and good biological education was provided to the public. The exaggerated media hype of utilizing the Alligator Gar as a cure for the control of Asian carp continued to be a part of the public education.
- Two Alligator Gar collections were confirmed by IDNR Fisheries in Illinois in 2018. On 7/8/2018, Macie Heuermann caught an Alligator Gar at the Clinton Lake Spillway/Salt Creek, Dewitt County, Illinois by fishing pole. The location was immediately below the Clinton Lake Spillway. The TL was estimated at 1016 mm (40 inches) from photos of the fish. No ability to check for a tag and the fish was immediately released alive. The fish was verified from photos by IDNR Fisheries biologists and speculated to be a 2013 IDNR fish from the Sanganois SFWA stocking over 123.4 miles downstream. On 7/17/2018 an Alligator Gar was caught in Horseshoe Lake-Alexander County by the multi-agency Black Carp survey by gill net. The crew included Grace Loppnow and Wyatt Snodgrass from the Carterville USFWS office. The TL was 1187 mm. No PIT Tag was present and no immediate ability to check for wire coded tag was available. Shawn Hirst with IDNR Fisheries tagged the fish with PIT tag #4824016655 and it was released.
- Powerton Lake is on the warm water temperature extreme for water bodies in Illinois. On 8/8/2018, a total of 13 Alligator Gar were collected with an average length of 1404 mm (55.3 inches) and 23,904 grams (52.7 pounds) each. 12 fish were collected with the 3" and 4" Alligator Gar gill nets, and 1 more with DC electrofishing. These are the 9 year old fish that Trent Thomas and Rob Hilsabeck came down to Tupelo and picked up from Mr. Campbell. All of them are PIT tagged and were stocked as 2 year old fish on 6/9/2011. In 5 sampling trips over 5 years, we have collected 41 of the original 78 stocked fish (52.6%)! These fish had moved to an interior intake canal at this warm water power plant lake (coal fired). This interior canal has no fishing access, and a constant supply of forage of Gizzard Shad and Silver Carp. Gastric lavage was not attempted with the high water and air temperatures.

## 2019

- Illinois IDNR received no Alligator Gar fry to rear from the USFWS in 2019. The USFWS had a very poor production year on fry from the brood fish collection in 2019. However, on July 26<sup>th</sup>, the USFWS, Pvt. John Allen Hatchery was able to provide the Illinois IDNR approximately 800 Alligator Gar from their limited 2019 year class. These fish averaged approximately 10 inches in length and were all tagged with Sequential Coded Wire Tags by the USFWS. 59 were transferred to the Illinois Cordova Exelon hatchery for further rearing and to be used as Yellow Sandshell mussel propagation hosts.
- On July 26, approximately 750 of these fish were stocked into Horseshoe Lake in Alexander County. Horseshoe Lake State Fish and Wildlife Area is an old Mississippi River oxbow that is 1890 acres in size with a maximum depth of 6 feet. In recent years it has been occasionally reconnected to the Mississippi River with the historic floods and levee failures. This site is in the southern tip of Illinois and adjacent to Missouri and Kentucky.
- 59 were transferred to the Illinois Cordova Exelon hatchery. These fish will be reared in raceways for the remainder of 2019 and used for propagation hosts for the endangered yellow sandshell mussel in early 2020. The plan is to stock these fish into an appropriate Illinois water in the late summer of 2020 after further growth at the Exelon hatchery.
- A statewide administrative rule for Alligator Gar was finally started in Illinois on 4/1/2019. The harvest regulation allows the creel of 1 Alligator Gar per 24 hour period, and no commercial harvest is allowed. Anglers are encouraged to report any Alligator Gar harvest or catches with a picture to the IDNR. An informational page is included in the annual regulation book and the IFISH website. Requested information will help biologists to collect data from anglers and bow fishers regarding fishing pressure and harvest. No Alligator Gar collections by the public were confirmed by IDNR Fisheries in Illinois in 2019.
- Personnel with the IDNR Division of Fisheries and the Exelon Hatchery completed multiple interviews with print and television media on the reintroduction of Alligator Gar in Illinois and the management plan. The overall response was positive and good biological education was provided to the public. Rob Hilsabeck with IDNR Fisheries and Jeff Stein with the INHS were able to attend the Southern Division of the American Fisheries Society meeting in January. At this meeting they attended the Alligator Gar Technical Committee meeting, symposia and workshop. Current techniques for Alligator Gar rearing, sampling and management were shared by the leading biologists in the field.
- Powerton Lake is on the warm water temperature extreme for water bodies in Illinois. On 8/6/2019, a total of 6 Alligator Gar were collected by IDNR Fisheries. 4 of these fish were 10 year old fish that were stocked as 2 year old fish on 6/9/2011. On 8/6/2019 they had an average length of 1467 mm (57.7 inches) and 24,062 grams ( 53 pounds) each. 2 additional fish were collected from the 9/20/2016 stocking of Alligator Gar into Powerton Lake. These 3 year old fish

had an average length of 1194 mm (47 inches) and 14,500 grams (31.9 pounds) each. All of these fish were collected with the 4" Alligator Gar gill nets. In 6 sampling trips over 6 years, we have collected 41 of the original 78 stocked fish (52.6%) from 2011! These fish had moved to an interior intake canal at this warm water power plant lake (coal fired). This interior canal has no fishing access, and a constant supply of forage of Gizzard Shad and Silver Carp. Gastric lavage was not attempted with the high water and air temperatures.

## 2020

- Illinois IDNR received no Alligator Gar fry to rear from the USFWS in 2020.
- On 6/25/2020, the IDNR stocked 45 Alligator Gar into The Nature Conservancy Emiquon Preserve. At stocking these fish averaged 380 mm (15.0 inches) and 262 grams (0.6 pounds) each. These fish were PIT tagged immediately before stocking. This small group of Alligator Gar began their journey to Illinois in July of 2019 from the USFWS, Pvt. John Allen Hatchery. These fish were reared in raceways at the Exelon Hatchery for the remainder of 2019 and used for propagation hosts for the Iowa state endangered Yellow Sandshell mussel in early 2020. The hatchery staff were able to transform thousands of Yellow Sandshell off of the gar, and have about 1500 individuals at Age 1 that will be ready for stocking in 2021. The TNC Emiquon Preserve of Thompson and Flagg Lakes provides an opportunity to reintroduce the Alligator Gar into a large, restored backwater habitat of the Illinois River. This 6,000 acre site is owned by The Nature Conservancy with the goal of floodplain restoration and the scientific research to guide the management of these ecosystems. The IDNR is one of many partners that are assisting the Nature Conservancy with the management and research at this site. The cooperative fish management agreement between the IDNR and TNC for Emiquon has facilitated the initial fish population rehabilitation, stocking, public fishing access and regulations.
- Powerton Lake is on the warm water temperature extreme for water bodies in Illinois. On 9/4/2020, a total of 4 Alligator Gar were collected by IDNR Fisheries from the intake canal at Powerton Lake. All of these fish were 11 year old fish that were stocked and PIT tagged as 2 year old fish on 6/9/2011. On 9/4/2020 they had an average length of 1518 mm (59.8 inches) and 25,625 grams ( 56.4 pounds) each. All of these fish were collected with the 5 inch Alligator Gar gill nets. In 7 sampling trips over 7 years, we have collected 43 of the original 78 stocked fish (55%) from 2011! These fish had moved to an interior intake canal at this warm water power plant lake (coal fired). This interior canal has no fishing access, and a constant supply of forage of Gizzard Shad and Silver Carp. Gastric lavage was not attempted with the high water and air temperatures.
- Personnel with the IDNR Division of Fisheries and the Exelon Hatchery completed multiple interviews with print and television media on the reintroduction of Alligator Gar in Illinois and the management plan. The overall response was positive and good biological education was provided to the public. Trent Thomas with IDNR Fisheries was able to attend the Southern

Division of the American Fisheries Society meeting in January. At this meeting he attended the Alligator Gar Technical Committee meeting in which current techniques for Alligator Gar rearing, sampling and management were shared by the leading biologists in the field.

## 2021

- Illinois IDNR received no Alligator Gar fry to rear from the USFWS in 2021.
- Powerton Lake is on the warm water temperature extreme for water bodies in Illinois. On 8/10/2021, 6 Alligator Gar were collected by IDNR Fisheries from the intake canal at Powerton Lake. 4 of these fish were 12 years old, and they were stocked and PIT tagged as 2 year old fish on 6/9/2011 into Powerton Lake. On 8/10/2021 they had an average length of 1397 mm (55 inches) and 23,600 grams (52 pounds) each. All of these fish were collected with the 5 inch Alligator Gar gill nets. In 8 sampling trips over 8 years, we have collected 45 of the original 78 stocked fish (58%) from 2011! The other 2 fish collected in 2021, were fish that were stocked in 2016 as YOY fish on 9/20/2016 at 10.4 inches. On 8/10/2021 they had an average length of 1283 mm (50.5 inches) and 18,600 grams (41 pounds) each.
- Illinois DNR Fisheries had two confirmed Alligator Gar collections within the state in 2021. The first fish was caught by USGS Invasive Carp Crew, Cortney Cox, biologist USGS Columbia MO by a 5 ft Hoop net set on 6/16 and pulled on 6/18/2021. It was located in the Mississippi River, Mosenthein Island Chute, (38.71718, -90.18805), Madison County, near Granite City, Illinois. The fish had a total length of 1036 mm. The fish was deceased, and the head was checked for a Wire coded tag. And no tag was found. The second fish was caught by Mr. Jon Reith on 9/29/2021 by fishing pole below the Fawell Dam. This site is located on the West Branch DuPage River, DuPage County (41.78455, -88.17793) in Naperville, Illinois. The total length of the fish was estimated at 381 mm. The fish was verified by IDNR Fisheries biologist from supplies pictures. The angler released the fish back into the stream. Naperville is a southern suburb of Chicago! We believe this fish must have been a release from the aquarium trade hobby.

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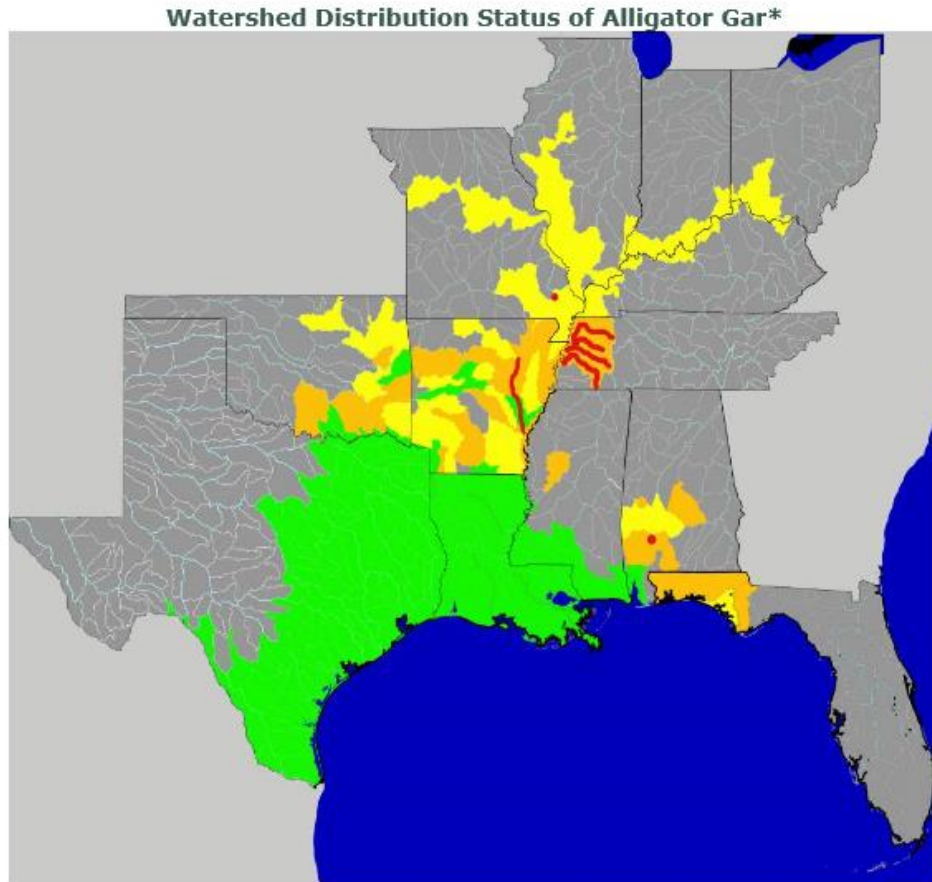
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## Appendix of Tables and Figures

**Table 1.** Records of the Alligator Gar's occurrence in Illinois and adjacent waters from Poly (2001).

Water body	Location	Size	Date	Reference
Big Muddy River	Jackson Co., IL	---	---	Forbes, 1884
Wabash River	New Harmony, Posey Co., IN	---	---	Jordan, 1890
Illinois River	Naples, Scott Co., IL	8 ft., 7 in.	1922	Weed, 1923
Mississippi River	Grafton, Jersey Co., IL	~6 ft. (87 lb.)	1922	Weed, 1923
Mississippi River	Grafton, Jersey Co., IL	~7 ft., 6 in. (176 lb.)	---	Weed, 1923
Mississippi River	Grafton, Jersey Co., IL	6 ft., 6.5 in.	---	Weed, 1923
Illinois River	Meredosia, Morgan Co., IL	8 ft., 6 in.	Rcd. 1922	FMNH 9926
Kaskaskia River	Randolph Co., IL	---	1930	Luce, 1933
Illinois River	specific locality unknown	---	Rcd. 1935	INHS 64422
Mississippi River	Columbia, Monroe Co., IL	58.5 kg., ~2 m.	1937	INHS 48200
Mississippi River	[floodplain 3 mi. west of Columbia; collectors: W. Lopinot & P. Lopinot; photographic record]			
Mississippi River	[near] Cairo, Alexander Co., IL	---	May 1944	Barnickol & Starrett, 1951
	[n=80, total weight=182.3 lb.]			
Mississippi River	Cape Girardeau, MO	1.7 lb.	May 1944	Barnickol & Starrett, 1951
Mississippi River	Grand Tower, Jackson Co., IL	---	June 1944	Barnickol & Starrett, 1951
	[n=2, total weight 58.9 lb.]			
Mississippi River	Chester, Randolph Co., IL	2.4 lb.	June 1944	Barnickol & Starrett, 1951
Mississippi River	Grafton, Jersey Co., IL	26.8-27.7 in., 4.1 lb.	July 1944	Barnickol & Starrett, 1951
Mississippi River	Grand Tower, Jackson Co., IL	~1750 mm.	1955	Burr et al., 1996
	[in Nine-Mile Shute, SIUC photographic record, caught by C.E. Nickles]			
Mississippi River	[near] Batchtown, Calhoun Co., IL	>2 m.	1963	Burr et al., 1996
	[below Lock & Dam No. 25; caught on hook and line by Roy C. Heidinger]			
Horseshoe Lake	Alexander Co., IL	67 in. (1.7 m.)	1964	Burr et al., 1996
	[caught in trammel net by commercial fisherman, recorded by Ora M. Price]			
Mississippi River	[near] Chester, Randolph Co., IL	49 kg. (110 lb.)	1965	Smith et al., 1971
	[caught by commercial fisherman, photographic record furnished by Ora M. Price]			
Mississippi River	[near] Cairo, Alexander Co., IL	58 kg. (130 lb.)	1965	Smith et al., 1971
	[caught by commercial fisherman, photographic record furnished by Ora M. Price]			
Cache-Mississippi Div.	Channel NW Klondike, Alexander Co., IL	~7 ft., 130 lb.	April 1966	INHS 48182
	[at State Route crossing, caught on hook and line, photographic record]			
Ohio River	Shawnee Power Plant, McCracken Co., KY		---	Hoyt, 1979
	[n=20, total weight=3,375 g. fish were impinged on screens at water intake]		1974-1976	

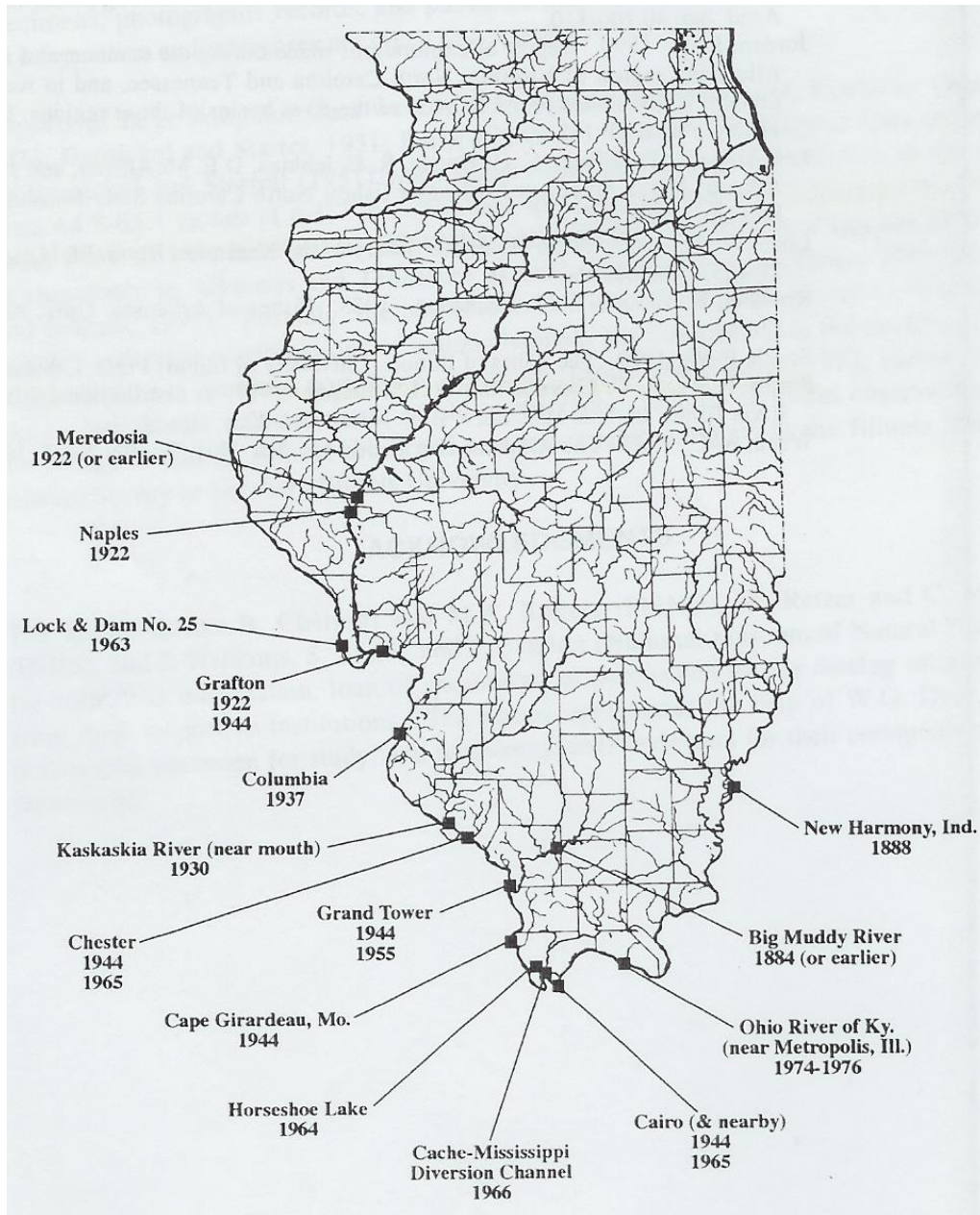


**KEY**

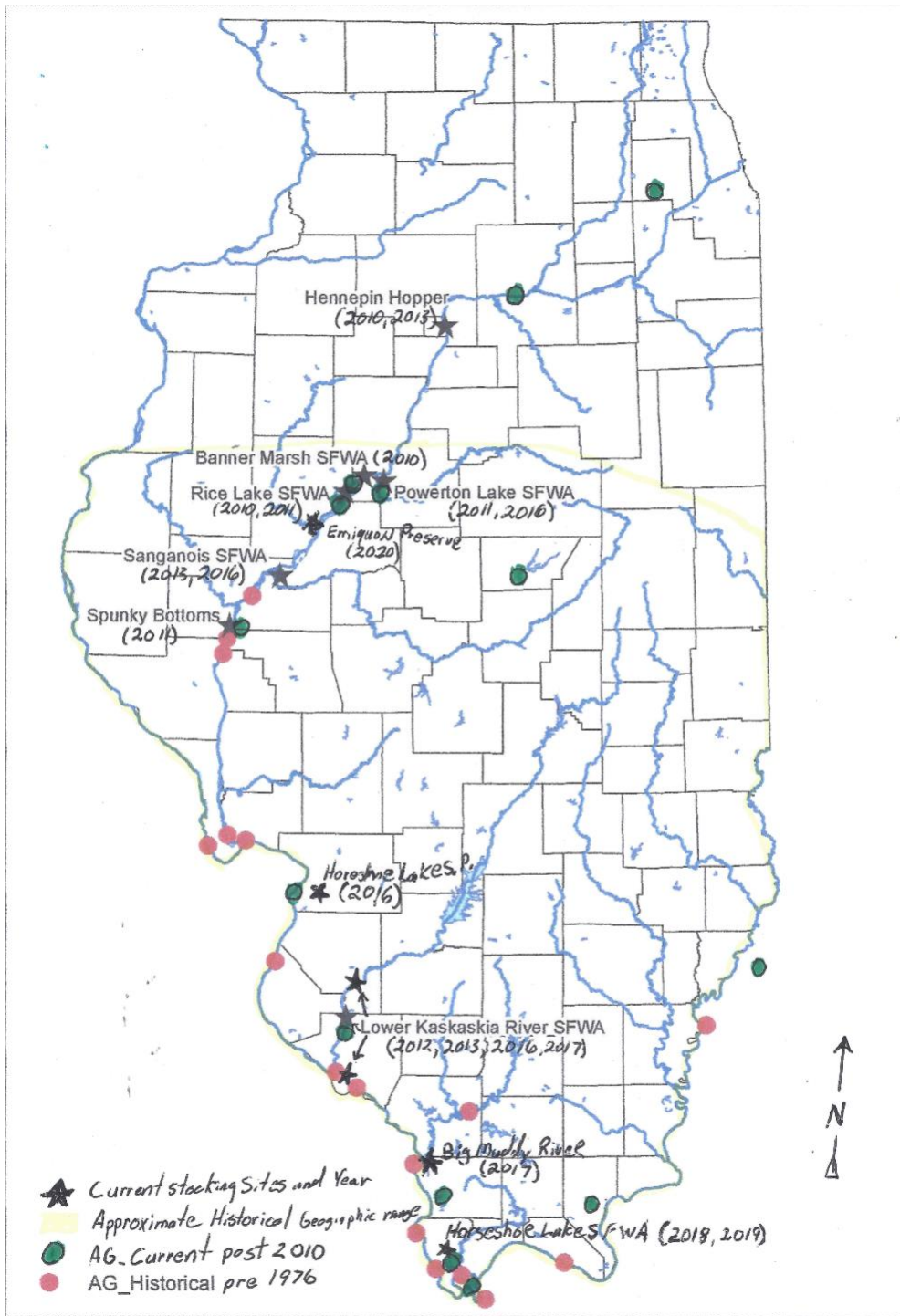
- Green - Naturally Sustaining Populations**
- Orange - Remnant Populations or Individual Observations**
- Red - Stocked Population**
- Yellow - Approximate Historic Range (Possible Extirpated)**

\* This map is an estimation of the historic and current range based on available data, habitat, and life history associations.

**Figure 1.** Geographic range of Alligator Gar in the United States. Population extending south from Texas into Veracruz, Mexico not shown. Mapped by USFWS 2007).



**Figure 2.** Distribution and chronology of collections of the Alligator Gar in Illinois and bordering waters based on historical records (Poly 2001).



**Figure 3:** Estimated historic geographic range and current Alligator Gar stocking sites to date. This map also shows documented Alligator Gar collections pre 1976 and post the start of the IDNR stocking program in 2010.



# THE ALLIGATOR GAR

(*Atractosteus spatula*)

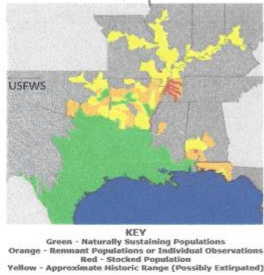


## History

- Gar, in general, are considered “living fossils,” dating back 135 million years. They swam with the dinosaurs!
- The oldest alligator gar fossil is 5.3 million years old from Florida.
- Gar have been considered a despised fish historically and people attempted to eradicate them. The eradication of alligator gar was successful in Illinois.
- The last alligator gar caught in Illinois was in 1966 from Alexander County (Southern, IL). It was 130 pounds! See photo to the right:
- The alligator gar was listed as state-endangered until 1994. It was then removed from the list and considered extinct in the state!

## Distribution

- Gar species once inhabited Africa, Europe, India, and South America, but for unknown reasons can only be found in North and Central America today.
- The alligator gar is native to Illinois, southern states, and Mexico. See range map below:



## Fun Facts

- Alligator gar can exceed 300 pounds and reach 10 feet in length, making them the largest fish in the Mississippi River Valley, including Illinois!
- They are long-lived with some captured individuals estimated to be nearly 100 years old!
- They grow fast, reaching 38 inches and 14 pounds in just 17 months!
- A 2012 study in Illinois found no difference in growth or body condition compared to a similar population in Louisiana!
- They have a modified swim bladder, which allows them to gulp surface air and survive harsh, low oxygen conditions.
- Gar eggs are reported to be toxic to some animals, presumably as a defense mechanism.



## Conservation & Management

- Populations have declined throughout the range and are considered vulnerable to extinction.
- The species is now considered a sportfish in many states with an increase in angling and bowfishing. Commercial harvest is also popular. They are a popular food fish in the south!
- States within the range have joined with the U.S. Fish & Wildlife Service (USFWS) to study, reintroduce, and conserve populations.
- Illinois began in 2009 by reintroducing populations with fry provided by the USFWS.
- Populations are being monitored at this time with no stockings in recent years.



## Diet

- A lie-in-wait predator, the alligator gar is opportunistic and typically feeds on the most abundant prey fish available. Scavenging is also reported.
- A 2012 study in Illinois found only gizzard shad in their diet. Studies elsewhere reported “rough fish” and occasional catfish, sunfish, and turtles, snakes, waterfowl, and mammals.
- They can consume large prey items with some fish recovered from stomachs that were 41% of the gars length!
- Researches think they may be useful predators against non-native, invasive fish, such as Asian carp.
- They are, overall, docile when handled and there have been no credible reports of human attacks. However, they have large teeth and sharp scales and care must be taken when handled!

## Identification

- There are four species of gar native to Illinois; the shortnose, longnose, spotted, and alligator gar.
- The alligator gar is often confused with the shortnose gar. Major differences include size and the wide, robust head of the alligator gar. The alligator gar is unique in having two rows of teeth in the upper jaw. See images below:

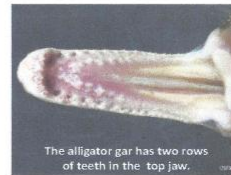
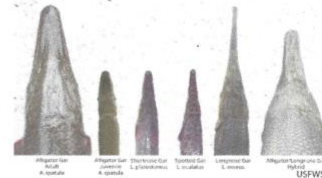


Figure 4. Illinois Department of Natural Resources Alligator Gar Fact Sheet for public education and outreach.