

American Paddlefish | Ark of Taste Nomination Form

PRODUCT NAME

American Paddlefish
Polyodon spathula

CATEGORY

Fish

COUNTRY

United States of America



PRODUCT DESCRIPTION

The American Paddlefish (*Polyodon spathula*) is a paddlefish native to the Mississippi River system. It is a primitive cartilaginous fish that has remained unchanged for some 300 million years; it is closely related to sturgeon. The American Paddlefish is one of only two such species in the world; the other is the Chinese paddlefish, thought to be extinct from the Yangtze River. This amazing fish is a plankton feeder. It dines on zooplankton, swimming through the river with its mouth hanging open, collecting microscopic plankton, and using electroreceptors in its long, paddle-shaped snout (called a rostrum) to detect its microscopic prey in murky river waters. It is sometimes called the spoonbill or, erroneously, spoonbill catfish (it is unrelated to catfish, which are bottom-feeders). It is harvested primarily for its caviar, which closely resembles that of sturgeon. Its meat is of secondary importance, but is also delicious fresh or smoked. The average size of a mature, egg-bearing female is about four feet and 35-40 pounds, though paddlefish can reach six feet long and 200 pounds. They are one of the largest freshwater fish in America.

Paddlefish have been harvested for caviar for many, many years; only recently have they been harvested for their caviar. Only now are the specific qualities of paddlefish caviar coming to light. Having reviewed the written comments of numerous chefs, gourmands, foodies, and Slow Food members, it is apparent that today's artisanal paddlefish producers are creating a caviar that rates of the finest quality. Compared to Caspian Sea caviar, paddlefish caviar has a similar balance between saline, richness, and earthiness. It has less "pop" and texture than sturgeon caviar, tending toward a bit softer texture. The flavors of the best paddlefish caviar are long lasting, balanced, warm, buttery rich, slightly nutty, with no metallic notes or other off-flavors. At times it reminds of sevruga from the Caspian Sea.

The overriding quality of much fresh paddlefish is that of firmness. This fish eats and cuts in a manner reminiscent of pork loin, with extraordinarily dense texture. Veteran paddlefish farmer Keith Koerner surprises when he states, "The secret to cooking paddlefish is to overcook it." He exaggerates slightly, but in truth one should cook a mature, egg-bearing paddlefish far longer than normal than many fish. In a hot oven, a 45-minute roast will yield something more akin to a four-legged, oinking, curly-tailed animal than a fish. This robust quality of mature paddlefish lends tremendous versatility to the chef, as one can use paddlefish in everything from deep fried fish-and-chips to a Chinese twice-cooked pork-style stir fry, to a bacon wrapped roast loin of paddlefish. However, Kentucky State University researchers are also exploring the marketability of younger two-year-old paddlefish for the restaurant market. Younger fish are attractive to farmers because of the rapid

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growth of the fish, allowing the farmer to quickly bring a product to market. Culinary experiments with two-year-old paddlefish have yielded a different, very attractive product. A salt-baked young paddlefish emerges from its crust with a superbly delicate texture and flavor, more akin to rainbow trout than the powerfully dense older fish.

The smoked fish can be profound. The manner of preparation matters greatly, as the style can range from pungently smoked and salty to delicate in flavor and texture. Chefs have successfully made a wonderful unsmoked cured gravlax-style paddlefish, as well as hot-smoked preparations which, amazingly, resemble nothing so much as deli-style smoked ham. In these examples the older, firmer fish is preferable. The quality closely tracks that of smoked sturgeon, which is similarly firm. (In fact, some paddlefish farmers report recent third party sales of their fish from smoked fish producers to Eastern European food shops, where the fish is labeled as “smoked sturgeon” and never as smoked paddlefish. As the saying goes, plus ça change....)

PRODUCT HISTORY

As a species that predates by a few hundred million years the formation of the rivers it lives in today, the American Paddlefish intersects with many contexts in the history of America’s people and food, from pre-Columbian to the turn of the 21st century. Native Americans devoured sturgeon with relish, though they never went on to preserve the roe as caviar. But despite their zeal for America’s sturgeon species, there is scant evidence the Indians ever went for paddlefish (the explorer Jonathan Carver in the 1760s mentioned the presence of paddlefish in the Mississippi but noted “they are not so much esteemed even by the Indians”). Early colonists largely shunned the fish as well. However, immigrants to America who had a tradition of caviar and sturgeon in their homelands found a ready source of food (and profit) in the paddlefish, discovering its close relation to sturgeon from 1870 in the American Caviar Rush. Yet this fishery would be strongly influenced by the greater market for Caspian Sea sturgeon caviar. So long as the Caspian Sea could produce the glamorous beluga and other eggs (or as long as the Atlantic sturgeon of the Delaware and Hudson Rivers was available in huge populations), caviar specifically identified as paddlefish would find little traction in the marketplace. The tall tales around Manhattan’s famous glutton Diamond Jim Brady never mention him inhaling a pound of paddlefish caviar with all those oysters; James Beard never extolled its virtues. Hence this very old fish is today something of a novel food in America, even though it was extensively harvested for its eggs during the Caviar Rush.

Historically, there essentially were no growing or harvesting methods beyond merely netting the fish en masse out of the river. Techniques for caviar production were brought or learned from Caspian Sea fisheries (though we might not assume the caviar makers in those days were as careful and scrupulous as modern artisanal producers). It goes without saying that 19th century caviar harvests offered nothing but decimation for any species that could provide the coveted eggs. Paddlefish caviar, along with American sturgeon species, was routinely harvested and exported to Europe (it was even exported back to Russia and labeled as Russian caviar!), as America became the largest caviar producer in the world, a title it held only briefly, until the sturgeon stocks on the East Coast (and to a lesser extent, the paddlefish) were all but exterminated in the Caviar Rush of roughly 1870-1900.

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Today's paddlefish farmer is vastly more enlightened. Due to its unique diet of zooplankton, the farming of adult paddlefish neatly sidesteps the many pitfalls commonly associated with aquaculture or fish farming, such as pollution, feeding of staple crops or other fish to farmed fish, and overbreeding. Among the world's sustainable fisheries, it is typically preferable to procure sustainably wild caught fish, as opposed to farmed fish. With the paddlefish, the exact opposite is true: it is farmed (or "ranching" in reservoirs, quarries, and other large bodies of water) paddlefish that promises to efficiently, cleanly, and fairly deliver caviar (and meat as well) to market.

For a variety of reasons, paddlefish are best harvested in cool weather. Paddlefish are sexually mature and produce eggs at about eight years of age. The eggs begin to form in November and continue to swell through the winter. The optimal time to collect the eggs is when the eggs are large and, more especially, firm. When the weather gets too warm, the viability of the eggs for quality caviar drops precipitously. This is because the warmer water temperature signals biological changes in the female, which softens the eggs and allows her to spawn. Furthermore, as with all farmed fish, higher water temperatures can produce a blue-green algae bloom which may impart a slightly muddy flavor in the meat. Thus, the meat is also at its best in cool weather.

The eggs are gently cleaned, salted, and cured into caviar whereupon it is stored slightly below 32°F for a long shelf life; in home refrigerators it has an unopened shelf life of four to six weeks. Caviar freezes quite well, with a frozen life of many months. The meat is sold fresh in late winter and early spring. It is remarkably dense and quite different from more delicate freshwater fish such as trout. It also freezes well; in fact, certain preparations of paddlefish, particularly older and larger fish, benefit from previous freezing.

Like sturgeon, paddlefish also can be cured and smoked with great success.

As to contemporary processing of paddlefish caviar, a committed modern artisan operates from a very different mindset from the caviar skills of old. Where once any haphazard caviar making could suffice, since the product would be sold as "Russian" to an unsuspecting populace, a modern caviar maker must do their utmost to ensure that their caviar really does stand up against the finest Caspian products. Accordingly, the best paddlefish caviar producers have exhaustively practiced their craft: spending years learning from rare Russian tracts on caviar production; cleaning the eggs with only reverse osmosis water; using only immediately harvested fish, kept live in oxygenated water until the point of death; and comparing the effect of different curing salts in repeated tasting panels with chefs and gourmands (in fact, sea salts are unacceptable, for the slight mineral flavors and impurities they can impart to the caviar). Today's paddlefish caviar is quite assuredly the best it has ever been — particularly when it is farmed and not wild-caught — and rates among the best in the world.

Paddlefish caviar is very similar to that of sturgeon, and in the hands of a skilled artisan can equal the quality of the caviar of the Caspian Sea. Like sturgeon, paddlefish require many years to reach sexual maturity (about 8-10 years, and they can live up to 50 years), and are particularly vulnerable to overfishing in the wild, since fishermen and poachers target mature, gravid females for their eggs which would otherwise, of course, become mature paddlefish. Unlike sturgeon, farming paddlefish is relatively simple: find a good, clean body of water, such as a lake or pond or quarry reservoir, stock it with young paddlefish and they will thrive on their sole diet of naturally occurring zooplankton, with no additional aeration, attention or expense. Importantly, they thrive in domestication while eating their natural, normal diet, as opposed to nearly every other farmed fish; hence a farmed paddlefish can have all the flavor and quality of wild caught fish, while being raised in clean waters.

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Since paddlefish feed on zooplankton, they do not disturb the feeding patterns of other fish (species which feed on plankton as adults are rare, one exception being the Asian carp, about which more below); nor do they eat other fish. Hence, a farming model for paddlefish is inherently sustainable, unlike that of fish-eating salmon or grain-fed tilapia. They easily co-exist in a farm pond with catfish or other fish. Paddlefish are especially well suited to this type of polyculture because these environments are rich with zooplankton, and their feeding on these organisms is actually beneficial to the overall water quality. They will not reproduce in these managed environments (they spawn only in running water), so overpopulation is never an issue. They grow large enough that no other freshwater American fish can eat them. Paddlefish also are not vulnerable to line-fishing, since, being a plankton feeder, they will not take a lure or bait, and so are untouched by sport fishing in their habitat. They are caught using large-mesh gill nets. This very specific gear allows other fish to swim through the large openings, ensuring there is no by-catch. Also, for caviar production the nets are used in winter to harvest the paddlefish while most fish are dormant and therefore cause little disturbance to other life in the pond.

Farmed paddlefish has the potential to replace sturgeon as a primary source for caviar, thus easing pressure on sturgeon populations worldwide. There even exists the possibility that the cartilaginous fins of the paddlefish might be used in place of shark fins in Chinese-style soups. Paddlefish farmer Renee Koerner has written a federal SBIR grant to explore this use for the fins, and researcher Dr. Steve Mims is investigating as well. Consider the possibility that with proper farming, one threatened species — the paddlefish — might eventually provide a measure of salvation to two other fish facing intense pressure from overfishing. One could scarcely design a more perfectly sustainable fish.

Farming of paddlefish tends to be modest in scale for several reasons. Caviar is exclusively a handmade product, as the delicate eggs require much handiwork before they become caviar. Since the meat yield of paddlefish is fairly low by carcass weight, they are most economically viable when caviar is produced from the females and the meat subsequently becomes a secondary profit center for the farmer-caviar producer. Finally, the eight years or more required for mature, egg-bearing female paddlefish in a farming model of production arguably tends to attract committed artisanal producers, rather than industrial-minded aquaculturists, let alone the poachers who have so devastated stocks of sturgeons. While a large lake or reservoir could indeed contain a considerable number of paddlefish, a large scale, mechanized paddlefish farm or facility for caviar is unlikely, and perhaps outright impossible.

In sum, it is difficult to express the degree to which a paddlefish farming model rates on a so-called scale of sustainability. Considering that the species eliminates previous concerns about fish farming, while also replacing the imperiled sturgeon as a source for caviar, the only phrase that comes to mind regarding the sustainability of the paddlefish is “off the scale.”

HISTORICAL PRODUCTION AREA

The native range of the American Paddlefish extended throughout the entire Mississippi River drainage system; that is to say, roughly from the easternmost origins of the Ohio River in Pennsylvania, the rivers of Kentucky emptying into the Ohio, throughout the Mississippi south to the Arkansas and north to the Wisconsin River, and up the Missouri River to Montana (or to put it another way, from Pittsburgh to Yellowstone to New Orleans). A 2002 study cited a paddlefish that was tagged and swam from South Dakota to Kentucky. Movement studies suggest paddlefish can travel up to 100 miles per day. Thus to assign the paddlefish only to one American geographical region is misleading.

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Paddlefish researcher Dr. Steve Mims, at the Kentucky State University Aquaculture Research Center, writes “Paddlefish were heavily caught from U.S. wild resources in the late 1890’s to early 1900’s. The caviar and meat were highly desirable to the Eastern European immigrants at that time because of its similarity to sturgeon, eaten in their country of origin. The population was heavily fished and not sustainable. The fishery was again used in 1930, 1950 and 1980. Today only four states allow commercial fishing and more rigid regulations are added yearly.” Of course, a mere four states is but a fraction of the paddlefish’s native range. However, Kentucky is the premier state, permitting not only a controlled wild catch but also the super-sustainable, extensive reservoir ranching, and has a small but thriving cultured paddlefish caviar production. Moreover, Kentucky government initiatives in aquaculture research have provided much of the modern American knowledge of the fish and its related products.

Considering that the paddlefish has a historical range that encompasses nearly the entire swath of the United States of America — save for the coasts east of the Alleghenies and west of the Rockies — it is difficult, if not impossible, to assign it to one community or region. Historically, there have been multiple periods of paddlefish harvesting in the American Midwest. Some of these coincided with the American Caviar Rush of the late 19th century. Certainly such fisheries were closely connected at that time with the influx of European immigrants with a history of caviar and sturgeon fishing in their homeland. Such peoples knew about caviar and how to make it, and found in the paddlefish a familiar resource for caviar and smoked, sturgeon-like meat. But as the 20th century progressed, paddlefish harvesting retreated, for several reasons. Firstly, the caviar rush was over; America’s days as a player in the caviar market were long gone, and with them went the need to harvest paddlefish for their roe. The immigrants, also, had moved on, as the first generation gave way to the second and later generations, which found different economic lives than their fishmonger forbears. Finally, the caviar market itself changed. Say what you want about the Soviet Union, but there’s no denying the fact that this terrible communist regime did a fine job of marshalling and marketing their caviar resources. For decades after World War II, caviar meant only the cured roe of the several Caspian Sea sturgeons. There was no longer any call to harvest paddlefish roe and sell it surreptitiously as Russian caviar.

Modern day production of paddlefish caviar is centered in Kentucky, due in large part to the efforts of Kentucky State University researchers and aquaculture programs. Other states also produce paddlefish through farming, including Missouri, and farming stocks are beginning in Ohio.

FOR WHAT REASON IS THIS PRODUCT OR BREED AT RISK OF DISAPPEARING?

The Caspian sturgeons and the American paddlefish, relatives from ancient times, have long been closely bound in their fates at the hands of humans. In the American “Caviar Rush” from about 1870 to 1900, the U.S. became the world’s largest exporter of caviar, thanks to the vast and soon-to-be-devastated sturgeon populations of the Delaware and Hudson Rivers. A goodly portion of this export was fraudulently sold, and even shipped back to America, as Russian caviar. Even in recent years, paddlefish caviar is sometimes unscrupulously sold as Caspian sturgeon caviar. In her 2002 book *Caviar*, writer Inga Saffron relates the subterfuge employed by one cunning caviar importer in the late 1990s:

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When he ran short of Caspian caviar, he would often pass off low-priced American paddlefish caviar as sevruga. Occasionally he would try to be honest with his customers about the origin of his caviar. He once asked American Airlines if they would prefer the cheaper paddlefish roe to sevruga. But when the airline insisted on having the real thing, [he] simply sent them paddlefish caviar anyway. Neither the airline nor its customers ever recognized the difference [p. 208].

This sums up the dilemma of paddlefish caviar in a nutshell: just as good as “real” caviar, but forever the poor relation to the Caspian species. Moreover, the anecdote illustrates a hidden peril faced by the paddlefish: it can be falsely sold as Caspian caviar. There is a modest, emerging market among informed chefs and foodies in America for the product properly called American Paddlefish Caviar, but the market for Russian caviar is worldwide, huge and insatiable, ridden with ruthless poachers, corrupt officials, and expert smugglers. Hence, paddlefish could be poached into near extinction (as have the several Caspian species), while being falsely marketed as “real” caviar. This unseen commercial pressure could be the worst threat of all facing the paddlefish, as poachers take the fish and sell the eggs, not by the pound to domestic, reliable dealers of American Paddlefish Caviar, but by the ton to international panderers of would-be Russian caviar. In the most caustic of ironies, there is one group of people who might consider paddlefish as good as sevruga: the poachers, and their associated criminal dealers. Fortunately, authorities such as the U.S. Fish and Wildlife Service conduct DNA tests on many caviar shipments to identify true Caspian sturgeon species, which can root out false shipments of paddlefish roe; nevertheless, the possibility remains that some paddlefish caviar winds up masquerading as sturgeon, as it did in the 1990s and the 1890s both.

As if poaching and habitat loss due to dams were not enough, the long-suffering paddlefish faces a uniquely modern challenge from another fish. It is most unfortunate that the Asian carp, an invasive species growing like an ichthyic kudzu through the Mississippi drainage system, is an adult plankton feeder like the paddlefish. Although other American fish may not typically eat the adult paddlefish, it may yet be out-eaten in plankton by a horde of voracious, fast-maturing Asian carp, which the U.S. Geological Survey considered by 2003 as “already probably the most abundant large (> 5 pounds) fish in the lower Missouri River.” Sometimes it seems as if the paddlefish’s problems will never end.

Perhaps the most important chapter of the paddlefish’s history is still being written. North America is a continent once filled with one of the richest fauna of any place in history. Today most every large American animal species, from the bison and bears of Montana, to the condors and cougars of California, is a shadow of its former self, mostly eradicated from its native range. Yet there is one good-sized wild species clinging to its original habitat, still swimming the waters it has known for a long, long time. In the Ohio, the Mississippi and Missouri, the Licking and Scioto and the two Miami’s and the Illinois and Yellowstone and the Kentucky and many more rivers than that, one will still find, however sparsely, the American Paddlefish, the big one that got away from the settlement and “civilizing” of America by Europeans. To see these magnificent fish protected in the wild, but farmed in astonishing sustainability, would greatly help to safeguard their survival.

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IS THE PRODUCT FOR SALE ON THE MARKET?

Yes, these are some of its producers:

Producer: Big Fish Farms
Name: Renee and Keith Koerner
Address: Bellevue, Kentucky
Phone Number: 859-233-5909
E-mail: renee@bigfishfarms.com
Details and Products: paddlefish farmer; paddlefish caviar, paddlefish meat

Producer: Shuckman's
Name: Lewis Shuckman
Address: Louisville, Kentucky
Phone Number: 502-775-6478
E-mail: shuckmans@kysmokedfish.com
Details and Products: paddlefish caviar, paddlefish meat, smoked paddlefish

Producer: Aquila International Inc.
Name: Tim Parrott
Address: Versailles, Kentucky
Phone Number: 859-312-6480
E-mail: tparrott@aquila-inc.com
Details and Products: paddlefish rancher

Producer: Rockyridge Farm
Name: Jeanine Raymond
Address: Louisville, Kentucky
Phone Number: 502-239-0378
E-mail: rockyridgefarm@insightbb.com
Details and Products: paddlefish rancher

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NAME OF PERSON SUPPLYING THE APPLICATION

Jay Erisman, Slow Food Cincinnati, Ohio

PERSONAL MOTIVATION

Slow Food Cincinnati happens to be the chapter submitting this proposal due in large part to the presence in our community of arguably the most deeply committed and most thoroughly artisanal caviar producer at work today: Big Fish Farms, of Bellevue, Kentucky, which adheres with tremendous rigor and discipline to a perfectly farmed paddlefish production model, using no wild catch ever; their caviar is produced by hand with the utmost care, as many Greater Cincinnati chefs can attest, having accompanied the producer on paddlefish harvests. Big Fish Farms caviar graces the menus of many top restaurants in the Greater Cincinnati area; thus, as can happen in the modern world, one small artisan can have an influence far beyond their meager production, when they meet with like-minded, passionate individuals, such as are typically found in a Slow Food chapter.

One can also see the utter uniqueness of the paddlefish in terms of the typical member of the Ark of Taste. The Ark is populated around the world with a smorgasbord of the greatest foods, but rarely do those tomatoes and potatoes, the cheeses and the chickens and the oysters and the beans intersect with such a worldwide symbol of haute cuisine, of high living and the gourmand, as caviar. Therefore, while the paddlefish and its caviar is indeed a part of Midwestern American history (300 million years of history!), as harvested in decades past and today exemplified by the finest of artisan producers, in a larger historical sense it taps into the saga of one of the world's most iconic foods: c a v i a r. Food writer Maguelonne Toussaint-Samat aptly described caviar as "the last incarnation of the Immortals". Such a product explodes far beyond the confines of a single regional food way.

The American Paddlefish represents a unique congregation of many Slow Food values: a primitive, prehistoric fish, perfectly adapted to its native American river system, that, while threatened today (they are on the United Nations Convention on International Trade in Endangered Species [CITES] and the IUCN Red List as a vulnerable species), can provide caviar of exceptional quality, while being farmed or ranches and harvested in stunning sustainability. The very fish itself is good, clean, and fair, and given that it takes eight years or more to produce caviar, it is certainly slow as well. While wild populations of paddlefish are threatened on multiple fronts, the encouragement and wider establishment of paddlefish reservoir ranching and polyculture farming would decrease poaching pressure by making its caviar less expensive, better quality, better known, and more widely available. It is also hoped that Ark of Taste status would lend further credibility to the paddlefish as a source of great caviar, helping to bring the fish out of the shadow of the sturgeon.

In short, paddlefish are very good to eat, scrupulously clean in their environmental impact as a farmed species, and beneficently fair to other fish — both to their fellow American river species which they kindly do not eat, and to their imperiled, cartilaginous cousin, the sturgeon, whom the paddlefish may help, through farming, to survive by relieving them of the pressure of caviar production. After 300 million years, this docile, simple, surviving fish, manifestly deserves a time in the spotlight, a wider audience around the world, and a place on the Slow Food Ark of Taste.

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ADDITIONAL INFORMATION

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<<http://www.iucnredlist.org/details/17938/0>>

Paddlefish feeding <<http://www.youtube.com/watch?v=MF5Qq9mhrw>>

Invasive Asian Silver Carp, Illinois River <<http://www.youtube.com/watch?v=jb8OmEr7VqI>>