

Lagniappe



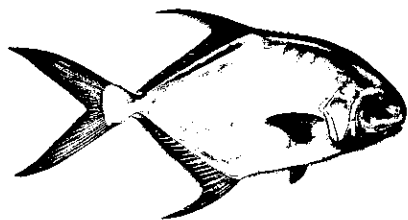
Research and Extension Programs

Agriculture
Economic/Community Development
Environment/Natural Resources
Families/Nutrition/Health
4-H Youth Programs

September 1, 2005 Volume 29, No. 9

PERMIT

Looking much like a super-sized pompano, the permit, *Trachinotus falcatus*, is very popular among recreational fishermen. Permit are more common in the southern Gulf of Mexico than in the northern Gulf, although they are by no means rare there. For many years catching a permit on a fly was considered one of the highest challenges a flyfisher could face. Permit make almost as good tablefare as their smaller cousin the Florida pompano, which is to say that they are excellent. Permit will grow to 44 inches long and 50 pounds.



In spite of their importance to fishermen, little research has been done on the species. In the late 1990s, biologists studying the species examined 308 permit from the Florida Keys, 10.3-36.6 inches in size and 228 permit, 2.6-32.5 inches long, from the Tampa Bay area.

The scientists aged 298 of the permit from 0 (young-of-the-year) to 23 years old, considerably older than the 7 years that its smaller cousin, the Florida pompano, reaches. Growth was rapid the first 5 years, with both males and females reaching over 26 inches in length by age 5. After age 5, growth rapidly slows, and after age 10, growth is almost unnoticeable.

They calculated that half the males in the population were mature at 19.4 inches and 2.3 years old. Fifty percent maturity for females was at 21.9 inches and 3 years old. All lengths used in the study were fork lengths (from the tip of the nose to the fork in the tail). The spawning season was found to be at least May-July and quite possibly March-August and in the Keys it could be year-round. Permit seem to be serial batch spawners, which means that rather than spawn all their eggs at once, they spawn in one batch after another as they mature.

Source: *Age, Growth, and Reproduction of Permit (Trachinotus falcatus) in Florida Waters*. Roy E. Crabtree, Peter B. Hood and Duke Snodgrass. Fishery Bulletin. Volume 100, No 1. January 2002.



INVASION OF THE PLANKTON SNATCHERS

Two non-native fish, the bighead and the silver carps, have received a great deal of attention since becoming common in US fresh waters in the last decade. Both species were imported into the United States in the early 1970s and were stocked into aquaculture ponds and wastewater treatment lagoons in several states.

It is thought that the first bighead and silver carp escaped into the wild from these ponds and lagoons during floods. Both species are now widespread in the Mississippi River and its tributaries. They are now being spread outside the Mississippi River system by their use as bait, by deliberate stocking, by transportation for the live seafood industry, and by people who practice prayer animal releases (a form of prayer practiced by people who believe that they gain merits by freeing captive animals into the wild).

The bighead carp is now found in at least 23 states and the silver carp in at least 16 states. Both species are native to eastern China and extreme southeastern Russia. The silver carp is found in much of the Korean peninsula as well.

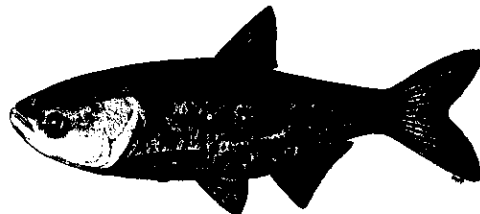
Bighead Carp

The bighead carp, *Hypthalmichthys nobilis*, is a powerfully built fish with a large head and mouth. Its body is dark gray above and cream-colored below, with dark gray or black blotches on its back and sides. The blotched pattern is less noticeable in fish from muddy water.

The bighead carp has a raised ridge or "keel" on its belly between its anal vent and the base of the rear set of paired (pelvic) fins. In the silver carp, the keel extends from the vent forward almost to the bottoms of the gill slits. While the eyes on both species of carps are located low on their heads, the eyes of the bighead carp face more downward and forward than the eyes of the silver carp.

In its native range, the bighead carp is primarily found in large rivers and in lakes associated with the rivers. In China, they use river channels until water levels rise each spring, then move upstream to spawn, followed by movement into flood plain lakes, then movement back into rivers. In the United States, they tend to use similar waters, seeming to avoid areas of swift current, except when spawning. They are active much of the winter, with activity slowing at temperatures below 39°F. At 35°F and below, they show little movement.

Bighead carp studied in the Missouri River were not found to travel long distances except during spawning season and high water periods, when they moved as much as 50 miles. Bighead carp are quiet, schooling fish and, unlike silver carp, do not often jump out of water.

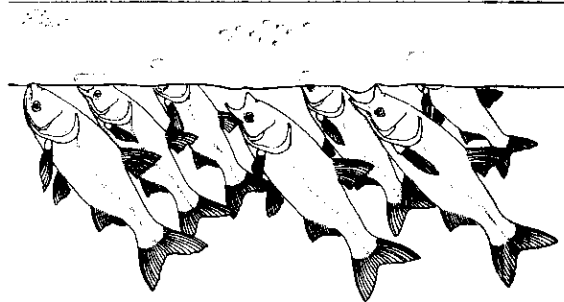
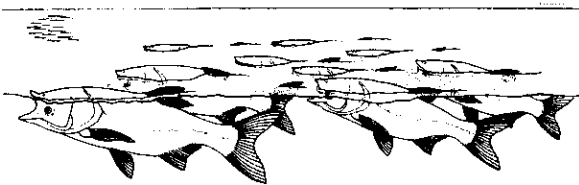


Female bighead carp reach maturity at 3-4 years of age at 7-15 pounds in warm climates, and at 6-8 years and 15-22 pounds in cooler waters. Males mature about a year earlier than females. The number of eggs produced per female ranges from 280 thousand to 1.9 million, depending on size and age of the fish.

Spawning occurs in spring when water levels rise in rivers due to spring rains and when water temperatures reach 72°F. Spawning sites have strong currents and muddy waters. Usually two or more males will actively chase a female at the water's surface, sometimes leaping out of the water. A male will often use its head to prod a female's belly, forcing her to flip over. Spawning is so active that eggs and sperm will sometimes be cast into the air. The eggs are semi-buoyant and require the turbulence of flowing water to keep them from sinking. When the young fish hatch, the larvae migrate to calmer waters that have plants.

Bighead carp are filter-feeders, using their gill rakers, comb-like extensions on the backsides of each gill arch, to strain tiny, almost microscopic animals (zooplankters) and plants (phytoplankters) from the water. Bighead carp prefer to feed on zooplankton, but if it becomes scarce, they will switch to feeding mostly on phytoplankton. Where their populations are large enough, they can reduce the numbers of zooplankters and larger-sized phytoplankters in their habitat. Bighead carp grow amazingly fast. In plankton-rich waters above 57°F, they can reach 6 pounds in less than a year and 40-50 pounds in 4 to 5 years. Maximum weight for bighead carp is around 90 pounds. Maximum age is at least 16 years old.

Bighead carp filter-feed using two methods, ram suspension and pump feeding. With ram suspension feeding, shown below at left, the fish simply swim through the water with their mouths held open, forcing water through their gill rakers. With pump feeding, the fish open and close their mouths, gulping in water which is forced through their gill rakers. The illustration on the right below shows bighead carp hanging nearly vertically, pumping plankton-rich surface film waters through their mouths. Most surface feeding by bighead carp seems to occur at night and during the evening.



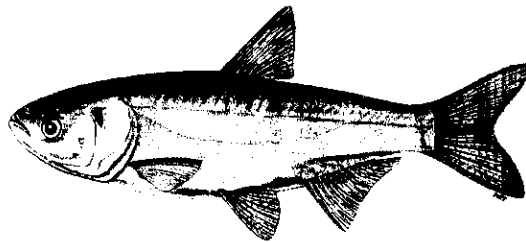
Although bighead carp are considered to be filter feeders and the vast majority of their diet is plankton, they can be caught with bait on hook and line. Often used are

sweet-smelling dough balls that break down slowly, cut bait, aquatic weeds, bread, potatoes, clams/snails, and earthworms.

In their native China, and several other countries, bighead carp are important food fish and the species ranks fourth in world aquaculture production. Bighead carp have been also stocked in ponds to improve water quality by removing algae. Bighead carp have also been suggested for use in removing excess plant nutrients from ponds and for stocking with other aquacultured fish to increase their production and growth.

Silver Carp

Like the bighead carp, the silver carp *Hypophthalmichthys molitrix*, is a strongly-built fish, but with a smaller, more proportionately-sized head than the bighead carp. Its body color is silvery with a darker back and it lacks the blotches usually found on bighead carp. Like the bighead carp, the eyes of the silver carp are situated very low on its head, but they are slightly less downward and forward facing. Its key distinguishing feature is that the keel or ridge on its belly extends forward from the anal vent all the way to the base of the gill slits, while in the bighead carp it only extends from the vent forward to the rear set of paired (pelvic) fins.



Like bighead carp, silver carp tend to be found most often in large rivers and in ponds, lakes and streams connected to large rivers. Also like bighead carp, they seem to avoid areas of swift currents, tending to gather behind large obstructions that break current flow.

Before spawning, silver carp move upstream to areas of swifter currents. These movements can be as much as 300 miles. Silver carp are active in the winter until water temperatures fall below 40°F. Below the 35°F, they school in deep pools and move very little. Silver carp may be more cold-tolerant than bighead carp.

Unlike bighead carp, silver carp become agitated by sounds and vibrations produced by boat motors and react by leaping out of the water. This tendency to jump becomes stronger with louder motor noises and higher motor RMPs. Reports of large, jumping silver carp seriously injuring boaters and water-skiers and severely damaging boats are becoming more common. The risk is highest when there are two boats moving at high speeds in the same direction. Silver carp jump out of the water behind the first boat and strike the operator and riders of the second boat.

Silver carp are difficult to catch with seines because they leap over the net. Not only do they escape the seine by leaping over it, they may injure the persons operating the seine by striking them.

Like bighead carp, silver carp mature earlier (2-3 years) in tropical and subtropical waters than in cooler waters (5-6 years). Males mature about a year earlier than females. Egg production ranges from 145 thousand to 5.4 million per female, depending on size and age of the fish. Also, similar to bighead carp, silver carp spawn in rivers during water level rises in the spring. At their spawning sites, spawning fish chase each other near the water's surface, shedding eggs and sperm.

Although silver carp have been documented to spawn in at least one reservoir, most spawning occurs in rivers with strong enough currents to keep the eggs from sinking to the bottom and dying. The eggs and larvae may be swept as much as 300 miles downstream from the spawning area. After hatching, the young seek quieter water with vegetation for shelter and growth.

Silver carp grow quickly. A weight of 12 pounds has been recorded for fish only one year old. In Israel, silver carp have grown to 45 to 65 pounds in 5 to 8 years. Silver carp can live to at least 17 years old and reach almost 90 pounds in weight.

Silver carp are primarily filter feeders, and seem to specialize in smaller plankton, especially phytoplankton, than bighead carp. They are primarily pump-feeders, but seldom feed very near the water's surface.

Swallowed plankton is ground by blunt teeth in their throat against a hard plate. Digestion in their intestine is very inefficient and large amounts of phytoplankton pass through the fish alive. Growth of some phytoplanktonic algae seems to actually be stimulated by passing through the intestines of silver carp. Research shows that as silver carp selectively feed more heavily on larger phytoplankton species, that smaller species replace the larger species. This, in turn, shifts the make-up of the zooplankton that eat phytoplankton to smaller species. Silver carp will also feed directly on zooplankton, especially when phytoplankton is scarce, as well as on bacteria, and plant and animal detritus. Silver carp can be caught with bread or dough balls waterproofed with salt-free butter and flavored with "smelly" cheese, aniseed oil or rotten bananas.

From the standpoint of pounds harvested, silver carp are the most important species of aquacultured freshwater fish in the world. Some researchers have suggested stocking silver carp in ponds with other fishes to increase their production and growth, and to control excess plant nutrients. Most controversial is their suggested use in ponds to control algae, especially undesirable blue-green algae. Some research indicates that the presence of grass carp can actually increase algae rather than decrease it.

Environmental Effects

Even though most species introduced outside their native range do not cause major environmental impacts, some do. The full impact of the introduction of bighead and silver carp into natural waters in the U.S. will not be known for some time, but concern exists.

Most mentioned is the fear that the carps will compete directly with native fishes for food. Paddlefish, bigmouth buffalo, gizzard shad, threadfin shad, and the emerald shiner (as well as many other shiners) are native, planktivorous (plankton-eating), freshwater fish as adults. Paddlefish are a species of special concern and are rare enough to be protected from harvest in some states. Both shad species and the many shiner species serve as a critical food base for freshwater game and commercial fish.

Additionally, virtually all fish—gamefish, commercial fish, rough fish, and forage fish, depend totally or partly on plankton as a food source for a period of time after hatching. Not only may the carps directly consume much of the available plankton, they may also change the native species make-up of plankton by their selective feeding. Some native fish larvae depend heavily on specific plankton species in their life cycle.

Also of concern, is their potential effect on water bottoms and water quality. Both carps are prodigious producers of body waste. The weight of the feces that they produce can equal their body weight in 10 days. A large population of bighead and/or silver carps has the potential to seriously affect water bottoms and the animals that live there.

While bighead and silver carp have been used to reduce undesirable algae blooms, most often their introduction has resulted in reduced water clarity rather than in more clarity. This occurs primarily because their presence causes increased production of smaller-sized phytoplankton. The carp have also been found to spur phytoplankton growth by stirring nutrient-rich sediments from the bottom up into the water column. Reductions of dissolved oxygen levels in water have also been associated with the introduction of these carps.

Source: *Asian Carps of the Genus Hypthalmichthys (Pisces, Cyprinidae) — A Biological Synopsis and Environmental Risk Assessment.* Cindy S. Kolar, Duane C. Chapman, Walter R. Courtenay, Jr., Christine M. Housel, James D. Williams, and Dawn P. Jennings. Report to U.S. Fish and Wildlife Service per Interagency Agreement 94400-3-0128.

H. M. S. REGULATIONS PROPOSED

The National Marine Fisheries Service (NOAA Fisheries) is proposing a new series of regulation changes for highly migratory species (HMS). This is a "lumped-together" category of fishes that includes all tunas, sharks, billfish, and swordfish. According to Bill Hogarth, director of NOAA Fisheries, the new regulations are being proposed both for biological reasons and to bring the U.S. in line with international agreements made through the International Commission for the Conservation of Atlantic Tunas (ICCAT).

The most important regulatory proposals are as follows:

- Create a U.S. recreational landings limit of 250 blue marlin per year.

- Prohibit white marlin landings for 5 years starting in 2007. Also in the same year, NOAA Fisheries will begin a formal review of white marlin to see if the species should be placed under the Endangered Species Act.
- Limit billfish tournaments to the use of circle hooks with natural bait and natural/artificial bait combinations, but allow J-hooks with artificial bait.
- Provide for closures to pelagic longlining of Madison-Swanson and with Steamboat Lumps off of the Florida Gulf Coast, to be consistent with Gulf of Mexico Fishery Management Council regulations. No other closures are proposed because NOAA Fisheries did not find additional closures to be beneficial.
- Require all longline and gillnet vessel owners and operators to attend workshops on how to safely dehook and release sea turtles.
- Require shark dealers to attend workshops on species identification.
- Allow spearguns to recreationally fish for tunas, except bluefin tuna.
- Allow greenstick gear to commercially fish for tunas, except bluefin tuna.
- Include a condition in the recreational HMS permit that permit holders must follow federal rules, even if fishing in state waters, unless state rules are more restrictive than federal rules.

Public comments will be accepted on the proposals until October 18, 2005 and a final rule will be issued in the spring of 2006. Comments may be sent to: Karyl Brewster-Geisz, NOAA Fisheries HMS Division, 1315 East West Highway, Silver Spring, MD. 20910; emailed to sfl.060303D@noaa.gov; or faxed to 301-427-2592.

PROMOTING RECREATIONAL FISHING?

It is no secret that in many states, sales of recreational fishing licenses have been dropping. Since state fish and wildlife agencies rely on license sales for a large part of their operating revenue, dropping license sales pinch already tight budgets.

Promoting fishing (and hunting) would seem to be the obvious answer to reverse the decline in license sales. However, such promotions can raise a host of questions. Would the money used in promotion be better used in managing fish and wildlife and/or enforcing fish and wildlife laws? Should an agency be in the business of promoting activities to raise more money for itself? Do current anglers and hunters benefit from sharing limited fish and wildlife resources with newcomers? Commercial fishermen can (and do) ask why an agency should do promotions to add numbers of recreational anglers when they themselves are faced with increasing restrictions, sometimes including limited entry? But none of those questions mean much unless the big one is answered first. Do such promotions even work?

One state agency that set about trying to answer that question is the Oklahoma Department of Wildlife Conservation (ODWC). Agency officials were concerned both about declining recreational fishing license sales since the 1970s and the 50% turnover rate each year among recreational fishing license holders.

As a first step, they commissioned a survey of license holders to determine why people fish and what prevented more participation in fishing. They found that among new or infrequent anglers the biggest obstacles were lack of knowledge about where to fish, how to fish, and when to fish. It was also found that a child's request to go fishing was a strong motivation for parents to participate.

With this information ODWC planned to two-part, two-year promotion effort. In 2001, in a cost-sharing partnership with the Recreational Boating and Fishing Foundation, they conducted a recreational fishing awareness campaign that targeted occasional anglers. They chose two communities to target, Norman and Muskogee. Two others, Bartlesville and Broken Arrow would not have campaigns, but would be compared against the first two to measure the effectiveness of the campaign.

The cornerstone of the campaigns was the distribution of 24 thousand two-sided, color, map-folded directories which were customized for each of the target communities. The local fishing directories featured close-to-home fishing opportunities, driving directions, specific places to fish at each location, information about fish species present, regulations specific to each area, and baits to use for different species. Additional information included public facilities available at each location, other opportunities for wildlife-related recreation on-site, where to purchase a fishing license, other nearby area fishing locations, boating safety, and ODWC informational phone numbers and websites. To take advantage of the motivation of a request from a child, the back side of the directory included the RBFF image of a small girl with the "Take me fishing because my wedding will be sooner than you think..." message.

Advertisements were bought in the local newspapers 3 times weekly and a full-page color advertisement was also purchased. Local businesses displayed posters and counter-top displays, inserts were made into utility bills, and radio advertisements were run 16 times each weekend.

From surveys taken in the four communities before and after the campaign it was determined:

1. Awareness of the advertising was significantly higher for the two communities with campaigns than for the two without.
2. Direct mailing of the directory to people was most effective, followed by, in order of decreasing impact, local business displays of the poster, utility bill inserts, newspaper ads and inserts, countertop displays, and radio.
3. People who received the directory were more likely to go fishing than those who did not.
4. More than 90% of those who received the directory found it useful and 72% said that it encouraged them to go fishing.

5. Repeat exposure to the campaign was more effective than a single exposure.
6. People receiving the directory were more likely to renew their license than people who didn't receive the directory.

The 2002 campaign was more focused, with occasional anglers directly encouraged to buy a license and go fishing. It targeted male anglers statewide, aged 28-55 years old who had purchased a license in 2001, but not in 2000, and had purchased a license only one or two times in 1995-1999.

Twelve thousand of those target market anglers were randomly selected to receive a specially designed direct mail packet of information to encourage them to renew their license. This "value added" packet contained a family-friendly cover letter, a copy of the 2002 Fishing Guide (regulations), two renew-by-mail license order forms, a refrigerator magnet/picture frame imprinted with a reminder to "get a license and go fishing," a discount coupon for "Outdoor Oklahoma" magazine, and a discount coupon for Bass Pro shops. These 12,000 drop-in anglers were also mailed a full color reminder postcard, "Take Me fishing..." message) four weeks after the value-added packet. Another 12,000 of the target market anglers received only the postcard. The cost for materials and postage was \$10,000.

Since the goal of this campaign was for these occasional anglers to buy a license, evaluation was 2002 license sales numbers. The results were:

1. The license renewal rate for those receiving only the postcard was 37%, a 3% increase over the previous year.
2. The renewal rate for those receiving the value-added packet and the postcard was 38%, a 4% increase over the previous year.
3. The postcard-only campaign cost 15 cents for production and mailing, while the cost for the value-added packet and postcard was 61 cents. The 1% increase in the renewal rate did not justify the expense.
4. The expenditure of \$10,000 produced \$22,000 of increased revenue for ODWC, but the \$10,000 did not include any employee time. They concluded that if employee time was added, such a campaign might not be profitable.
5. Only 208 of the 12,000 people receiving the value-added packet decided to renew the licenses by mail, showing that the process of getting a license is not an obstacle to participating in fishing. ODWC concluded that there is no "magic bullet" in regard to marketing efforts to increase license sales and solve financial problems. Different people respond to different messages, incentives and deliveries.

Source: *Marketing Efforts to Increase Fishing Participation in Oklahoma: A Case History*. Greg L. Summers and Andrea K. Crews. Proceedings of the Fifty-Seventh Annual Conference. Southeastern Association of Fish and Wildlife Agencies. October 2003.

BALL BAT

The Gulf of Mexico is blessed with many snapper species, some common to every offshore fisherman's knowledge and some rare. None is as exotic and unusual as the queen snapper, *Etilis oculatus*, or "ball bat", as deep water commercial fishermen call it. It is not often seen by the average recreational angler because it prefers deep water and because it is not particularly attracted to reefs, big rock piles, or oil and gas platforms.



A shallow water queen snapper catch might occasionally be made in 300 feet of water, but they really get most plentiful near the edge of the continental shelf at 460–600 feet and then on down the continental slope to as deep as 1,520 feet. While it does prefer hard bottom encrusted with bottom creatures, it usually is found on relatively level bottom, instead of near high-relief, jagged structure. It shares its deeper range with golden tilefish, its shallower range with yellowedge grouper, and in between, it is found with the snowy grouper.

Even its appearance is exotic for a snapper. Its body is very elongated, like a baseball bat, and the tail is deeply forked. Only the yellowtail snapper has a similar shape and tail, but both are less pronounced. Its color is deep pink to red on the back and sides, shading to a pink belly. The tail fin is a brilliant red and the other fins are pink. It has very large red eyes. Its beauty is matched by its quality on the table. The flesh is flakey, moist, and mild — fit for a queen.

Unfortunately, because of the depths at which it lives, it is a poorly-researched fish. Its known range extends from North Carolina to the eastern tip of Brazil, including the northern Gulf of Mexico. Recently, French and French West Indian scientists published a report on this interesting fish in the Caribbean. While the information published won't fill encyclopedias, it did add a little to our knowledge of the fish.

In the Caribbean, like in the Gulf of Mexico, most of the population of queen snappers are located near the edge of the continental shelf and down the continental slope, from 460 feet deep to 1,520 feet deep. Some fish are reported as shallow as 313 feet, with one report coming in from 195 feet. At these depths, it shows a preference for hard bottoms. Smaller fish, those under 20 inches long, are found on the shelf at depths of 600 feet and under. Queen snapper from 20–40 inches and up to 15 pounds are located deeper than 600 feet, on the continental slope.

In the Caribbean, males begin maturing at 12 inches and all are mature by 18 inches. Females begin maturing at 14 inches and all are mature by 22 inches. This is likely to hold true for Gulf of Mexico fish as well, as water temperatures at the depth they live in are fairly constant at 61–65°F. Spawning in the Caribbean was in November and December. This may be different for the Gulf as reef fish found off of islands spawn on different seasonal cycles than those off of continents.

Source: *Biology of the Queen Snapper (Etilis oculatus: Lutjanidae) in the Caribbean*. Bertrand Gobert, Alain Guillou, Peter Murray, Patrick Berthou,

Maria D. Oqueli Turcios, Ester Lopez, Pascal Lorance, Jerome Huet, Nicolas Diaz, and Paul Gervain. 2005. U.S. Department of Commerce, Fishery Bulletin, Vol. 103 (2) 417-425.

THE GUMBO POT

Stuffed Trout Conti

This recipe was contributed by Todd Masson, Editor of Louisiana Sportsman Magazine. Todd reported that this recipe may work well with other white-fleshed fish, but that he always uses speckled trout when he prepares it. He named the recipe for a friend, Ty Conti, who showed him a variation of the dish.

9-12	slices bread	1	medium-large onion chopped
½	tsp basil	1	stick butter
½	tsp oregano	1	egg
½	tsp thyme		non-stick spray
½	tsp garlic salt	10-14	medium speckled trout fillets
½	tsp onion salt		toothpicks
	Creole seasoning to taste	2	tbsp melted butter

Toast bread until very crispy but not burnt. Break up into crumbs in large bowl. Add basil, oregano, thyme, garlic salt, and onion salt. Mix well. In saucepan over medium heat, melt butter. Add chopped onions and sauté until soft, stirring constantly. Pour onions and butter over breadcrumbs, and allow to cool until mixture can be handled. Using hands, mix the sauce into the breadcrumbs. Add egg, and mix again with hands. Coat glass-baking dish with non-stick spray. Grab 1-2 heaping tablespoons of the breadcrumb mixture with hands and roll into ball. Place on center of trout fillet, and roll up the edges of the fillet, securing with one or two toothpicks. Place the ball-shaped, stuffed fillets in a glass baking dish. Repeat until all the fillets and mixture are used. Sprinkle with Creole seasoning to taste. Bake in center of 350-degree oven for 20-25 minutes. Baste top of fillets with melted butter, and reapply Creole seasoning. Bake another five minutes. Serves 4-6.

Sincerely,

Jerald Horst
Professor, Fisheries