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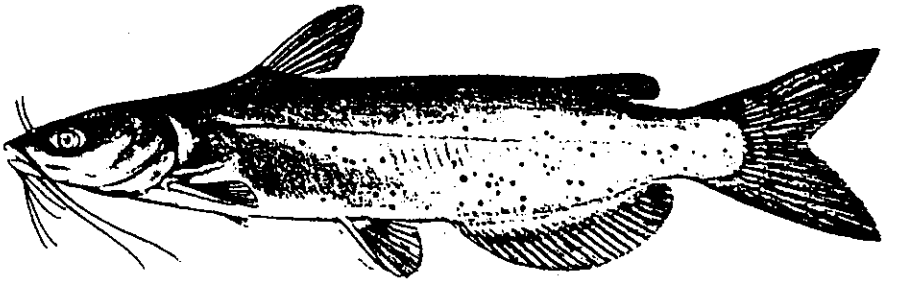
SEA GRANT PROGRAM



LAGNIAPPE

IMPORTANT MEETINGS FOR SEAFOOD DEALER LICENSE HOLDERS

Beginning January 1, 1999 holders of wholesale/retail seafood dealer and crab shedder licenses will be required to fill out trip tickets on all seafood that they handle. This requirement includes commercial fishermen who hold the license in order to legally sell to the public. A certain amount of detail is required on these forms, so the Louisiana Cooperative Extension Service has, with the Department of Wildlife and Fisheries, arranged for training workshops for license holders. Attendees should bring their wholesale/retail dealers or crab shedders license number with them to the meeting.

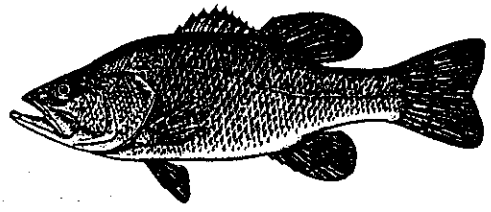
Some workshops have already been held. The schedule for the remainder of them is as follows:

- Monday, October 5, 6:30 pm. Jean Lafitte Community Civic Center, Hwy 45, Lafitte.
- Tuesday, October 6, 6:30 pm. Council Meeting Room, St. Bernard Government Complex, 8201 West Judge Perez Dr., Chalmette.
- Wednesday, October 7, 2:30 pm. East Bank Regional Library, 4747 West Napoleon Ave., Metairie
- Wednesday, October 7, 6:30 pm. East Bank Regional Library, 4747 West Napoleon Ave., Metairie.

- Thursday, October 8, 6:30 pm. Buras Auditorium, Hwy 11, Buras.
- Monday, October 19, 12:00 Noon. Southeastern Louisiana University, University Center, Room 133, Hammond.
- Tuesday, October 20, 1:00 pm. St. Tammany Parish Administrative Complex, 21490 Koop Dr., Mandeville.
- Friday, October 30, 1:00 pm. Louisiana Department of Wildlife and Fisheries Bldg., Louisiana Room, 2000 Quail Dr., Baton Rouge.

HELP FOR CANEY LAKE

Caney Lake in Jackson Parish has been the focus of attention for Louisiana bass fishermen for the last several years. Nineteen of the 20 largest bass ever caught in Louisiana were caught in Caney Lake. The introduction of grass carp in the lake to control aquatic plant growth has resulted in some controversy recently and the catch of large bass has been disappointing.



Louisiana Department of Wildlife and Fisheries (LDWF) biologists monitor the health of the fishery in Caney Lake. Department research has recently indicated that the lake has a fish recruitment problem. In simple terms, not enough small fish from each spawn are surviving to reach fishable size.

Apparently, the problem is that the lake needs more cover or structure. Caney Lake is basically shaped like a large smooth bowl. According to Gary Tilyou, LDWF Biologist Program Manager, adding structure should improve fishing, not only by concentrating fish, but by producing more fish.

Tilyou stated that what the department would like to do is create large areas of structure, not just a few isolated brush piles. Biologists are considering many non-polluting materials for this program. In addition to tree tops and Christmas trees, wooden pallets, used automobile tires, and damaged bricks and cinder blocks are being considered. The lake commission is also considering the purchase of commercially produced artificial fishing structure.

LDWF biologists have met with LSU fishery biologists to develop a plan to evaluate the effectiveness of the program. If everything goes according to plan the project will begin by this winter.

PLAYING CHICKEN WITH CRABS

Price and availability of bait for crab traps is a consideration for commercial crabbers. Researchers in North Carolina have been experimenting with the development of a bait made up of chickens and turkeys that die at poultry farms.

The dead poultry is fermented to get rid of any disease-causing bacteria before being processed into bait. This "artificial bait" was tested by commercial fishermen against menhaden (pogies) to see how well it would attract crabs. The results showed that the poultry bait attracted crabs as well as the menhaden bait, although it seemed that male crabs slightly preferred the fish.

According to Bob Hines, the Sea Grant Marine Extension Agent involved in the project, more research is needed to produce a more usable form for the bait. Because the fermented bait was almost a liquid, the product was put in sausage casings for the test fishing. If the researchers can come up with a formula to produce a practical bait, it will solve a problem for both crab fishermen and poultry farmers.

In an 18-week growing period, a flock of 10,000 turkeys will produce about 4.6 tons of dead birds. A typical flock of 25,000 broiler chickens can produce 1.5 tons of carcasses.

Source: *Marine Advisory News*. Spring 1998. North Carolina Sea Grant.

NUTRIA ITCH

Fur trappers and duck hunters that don't wear waders often come down with an unbelievable bad skin itching that makes them want to scratch their skin off, known as "nutria itch."

The culprit causing the itch is indeed a parasite of nutria, a tiny (one-twentieth of an inch) roundworm with the tongue-twisting scientific name *Strongyloides mycopotami.* While very little of the biology of this roundworm is known, its life cycle in nutria may be similar to that of a human roundworm, *Strongyloides stercoralis,* in humans.

This critter lives in the soil, and under some conditions its larvae may penetrate human skin and make their way to a blood vessel. From there they move to the lungs, where they spend some time developing to another stage. That stage is then coughed-up and swallowed. In the human intestine, the females lay eggs which are passed out with the wastes from the intestine back to the soil. Occasionally, the larvae pass back through the intestine wall, enter the blood stream, pass through the lungs and get back into the intestine.

None of this with the human-infecting species causes an itch like the nutria-infecting species does. The reason is that the nutria worm doesn't do so well in humans, and after drilling through the skin it wanders under the skin for a half-inch or so before it dies, causing the insane itching.

The bad news is that it only gets worse with each exposure. The first few nutria worm infections are usually unnoticed. With repeated exposures the human body develops an immune response, and each infection gets worse.

The only prevention is not to expose human skin to marsh mud, especially in areas of stagnant water. Wear waders! Trappers cutting ditches should also wear a rain coat as ditch-cutting machines often sling mud everywhere.

Source: Frank Rohwer. Louisiana Wildlife News, December 1997

FARMERS MARKET OPENING TO FISHERMEN

The Crescent City Farmer's Market is adding seafood to the selection of products to be offered for sale at the market. The market currently allows fruit and vegetable producers an opportunity to sell high quality products directly to the public.

The market has been located at 700 Magazine Street in New Orleans for the last 3 years. It is open each Saturday morning, 12 months a year. Approximately 1000 shoppers pass through the market each Saturday morning to make purchases from 65 fruit and vegetable stalls.

The plan to expand the market to include seafood will make 8 to 10 spaces available to commercial fishermen. Market organizers require that sellers must actually produce the seafood they sell, and that the seller has the necessary licenses to sell to the public.

Processed seafood products such as picked crab or crawfish meat, shucked oysters, and filleted fish must have been processed through an approved facility. Unprocessed products such as unpeeled shrimp, softshell crabs, whole finfish, and live crabs, crawfish, and oysters do not have such a requirement. Turtle meat, alligator meat, frog legs, and stone crab claws are other products of interest.

Fishermen or fish farmers interested in applying for a space in the market should call Jeff Barron, 861-5898 in New Orleans to express their interest. Each caller will receive an application and then a personal visit after the application is sent in.

Based on the established rules and the interview, selection of seafood venders is planned to be done by January 15. Oyster venders will begin sales by that date. Other seafood sales will begin the first Saturday in Lent of next year. At that time, the farmers

market will do extensive promotion to alert the public about the addition of seafood to the market.

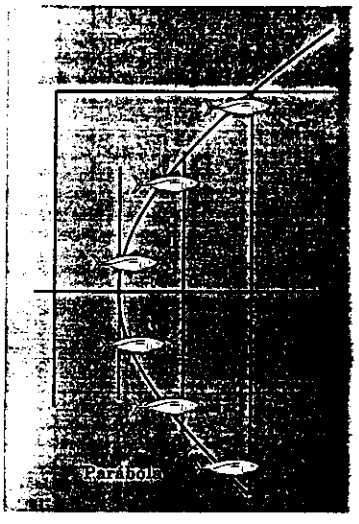
TUNAS ARE DIFFERENT CRITTERS

All tunas belong to a subgroup (tribe) of the mackerel family Scombridae. Outside of the fact that they have fins, they are different from almost all other fishes. Some travel incredible distances, all have extraordinary navigational abilities, are deadly hunters, are warm-blooded, and are built for speed better than the best sports car.

Bluefin tuna, leave their spawning grounds in the Gulf of Mexico each spring and travel north along the U. S. east coast to the shores of Massachusetts and Nova Scotia, Canada. There they gorge on pollock, herring, and mackerel. As the summer ends, they may travel completely across the Atlantic Ocean to the shores of Europe and North Africa, before returning to the Gulf to spawn.

Yellowfin tuna in the Pacific Ocean are often found on edge of island coral reefs during the day. Each night, they travel up to 9 miles offshore to feed and then return to the exact same spot the next day. That's the equivalent, in human terms, of walking 37 miles each night for supper. Tagging studies on tunas in the open sea show similar behavior. A tuna will hang around a floating log or other debris during the day, travel long distances at night, and return to the exact same log the next day.

Tunas are also marvelous divers. A bigeye tuna tagged with a radio transmitter was observed to dive 274 yards in less than one minute. The water temperature was 75°F at the surface and 48°F at the 274 yard depth. That much temperature change in less than one minute would kill many other fish.



Tunas are efficient hunters. Prey species of fish often form large schools as a defense against predators. Bluefin tunas form their own organized schools that swim in formation to attack these. The formation is in the shape of a parabola as shown on the left. With this formation, the tuna drive a school of fish between the outstretched ends of the parabola, then surround and consume the prey fish.

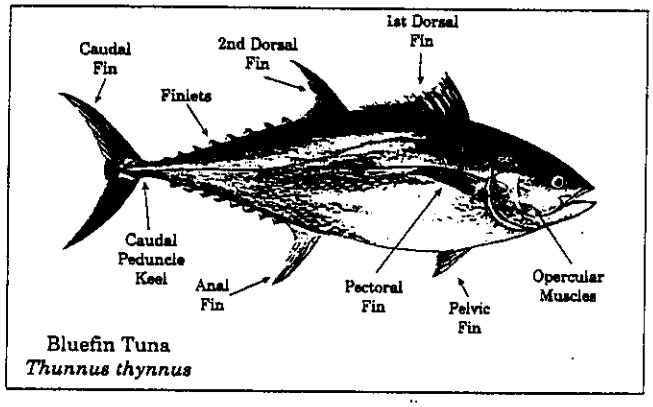
Tunas not only have excellent sight, they can smell their prey. Fish leave a scent in the water made up of oils, proteins, and animo acids from the slime layer on their body. Tiny traces of this wash off of the fish. When yellowfin tuna pick up this scent trail, they actually track down their prey.

Fish are generally thought of as "cold-blooded". That means that their body temperature is the same as that of their environment. Tunas (and a few sharks) have developed the ability to control their body temperature through a network of veins and arteries called a 'rete mirabile' that traps (and dumps) body heat. The largest bluefin tunas can have a body temperature 71°F warmer than the surrounding seawater. Even smaller tunas can be 50°F higher.

This is a huge advantage. For most cold-blooded fish, the colder the water and therefore their body is, the slower and more sluggish they are. Tunas' warmer body temperatures speed up the chemical reactions in their body that produce energy and allows their muscles to contract more quickly. This provides faster swimming speeds and increases their endurance.

Tunas are speed machines. No other fish can swim as far as fast as tunas. They are built for speed! Water has a lot of resistance or drag. Every eight-fold increase in swimming speed takes a 100-fold increase in energy.

One structure that reduces drag are caudal peduncle keels near the tail fin. These keels reduce water turbulence created by the tail fin and lower the drag by that part of the body. Tunas also have a series of sail-like finlets on the top and bottom of their body behind their fins. These are thought to prevent the swirls of water that spin off of the body and tail, allowing the caudal (tail) fin to work more efficiently in undisturbed water. The first dorsal fin also folds down into a groove on the body to reduce drag when the fish does not need it to maneuver.



Bluefin Tuna
Thunnus thynnus

Compared to other less-active fish, tunas have hearts that are ten times larger for their body weight, pump three times more blood, and have blood pressure three times higher. They also have a much higher proportion of red muscle in their bodies than the average fish, which allows them to cruise at higher speeds more efficiently. Tunas have been observed to swim at 28 mph for long distances.

Tunas also have gills that are up to 30 times larger in surface area than those of other fish. Additionally, tuna cannot open and close their gill covers with their opercular muscles to force water over their gills. Flaring gill covers would create drag.

This means, however, that tunas must swim or suffocate. They are "obligate ram ventilators." They must swim through the water with their mouths open to stay alive.

Oxygen-bearing water is swept over their gills purely due to the movement of the fish. In fact, tunas must swim at a speed of 26 inches per second in order to provide enough water flow to get the oxygen that they need.

Source: *Tunas.* Peter G. Bushnell and Kim N. Holland. Virginia Marine Resource Bulletin. Virginia Sea Grant College Program. 1997. Vol. 9, No.1 & 2.

LOUISIANA PROPOSES SHARK REGULATIONS

While Louisiana currently has some shark regulations on the books, the fishery is much more highly regulated in federal waters. The Louisiana Wildlife and Fisheries Commission has announced a set of **proposed** regulations for state waters, most of which will make state regulations very similar to federal water regulations. Comments on the proposed regulations should be directed to Harry Blanchet, Louisiana Department of Wildlife and Fisheries, Marine Fisheries Division, P O Box 98000, Baton Rouge, LA 70898-9000.

Provisions of the proposed regulations are as follows:

- Groups shark species into 4 groups, large coastal, small coastal, pelagic, and species prohibited from harvest.
- Closes all shark harvest in state waters, recreational and commercial, in April, May, and June of each year.
- Creates recreational limits of 2 Atlantic sharpnose sharks per person, and 2 **combined** of all other small coastal, large coastal and pelagic sharks **per boat.**
- Prohibits the taking of sawfish.
- Requires commercial fishermen that harvest sharks in state waters to have an annual shark permit and send in a monthly report.
- Limits all federal and state shark commercial permit holders to 4000 pounds dressed weight, per vessel per trip.
- Prohibits the removing of the fins of sharks and returning the carcasses to the water (finning).
- Requires that shark fins are not more than 5 percent of the weight of shark carcasses on a vessel.

- Prohibits possession of shark fins aboard a vessel after the vessel's first point of landing.

The provisions on annual permits, trip limits and finning have been put into effect immediately under a declaration of emergency, until the final rule is adopted.

MORE ON GREENHOUSE EFFECT

Some of what we call land loss in coastal Louisiana is actually due to rising sea level. Many scientists attribute this rise to the warming of the earth's atmosphere due to pollutant gases released by human activities. The theory is that these gases trap the sun's energy near the earth, much like a greenhouse does on a much smaller scale. This "greenhouse effect" is heating the oceans, causing the water in them to expand and also melting the earth's huge polar ice caps into the oceans.

Recently a group of scientists led by Jonathan Overpeck with the National Oceanic and Atmospheric Administration in Boulder, Colorado, found strong evidence that the earth started warming some time before humans released any significant amount of pollutants into the air. Studying tree ring widths, algae preserved in old lake bottoms, and gases in glacial ice, the scientists were able to determine temperatures for the last 400 years.

They found that the warmest period during those 400 years was between 1840 and 1920. This was before any significant human pollutants were deposited in the ice, so the warming was almost certainly natural. The causes were less volcanic activity and an increase in the sun's energy. Volcanoes blow enough gases and dust into the air that they block the sun's warming rays like an umbrella. With fewer eruptions to create this umbrella-effect, more heat reached the earth's poles. As ice and snow melted, there was less of it present to reflect the sun's energy away from the earth and the ground absorbed even more heat.

This doesn't mean that we're off the hook. After the 1920's, carbon dioxide gas in the earth's atmosphere has been increasing due to human activities. This is helping fuel the flames that nature lit.

Source: *Earth Magazine*. April, 1998.

ANIMAL RIGHTS GROUP SPEAKS

October has been National Seafood Month since 1958. That status is being challenged by the animal rights group People for the Ethical Treatment of Animals (PETA), according to a report in Seafood Business Magazine. The group is asking restaurants that sell fish and shellfish to call seafood "sea animals".

PETA states that it is not right to call sea animals "seafood" because land animals aren't called "land food". They maintain that the word seafood hides the fact that sea animals are conscious individuals who treasure their lives as they struggle to survive.

PETA further says "Fish communicate with sounds inaudible to humans. They use their sensitive tongues, mouths and lips like hands to gather food, build nests and incubate their eggs."

According to PETA spokesperson Linda Candler, they are not aware of any restaurant that have changed their menus yet.

PETA became involved in fish rights several years ago when they planned protests at fishing rodeos and tournaments across the country. Their protest at the Grand Isle Tarpon Rodeo was canceled shortly before the rodeo began.

THE STING

Convert or undercover investigations are more frequently being used by wildlife enforcement officers, as fish and wildlife law violators are becoming more well equipped, organized, and highly motivated. Covert operations are usually very complex, expensive, and dangerous to the agents involved. While they will never replace open enforcement by uniformed officers, they have an important place in the total picture. Summarized below are four examples of successful covert enforcement operations in the southeastern United States.

Operation Smokey

This joint investigation between the states of Tennessee and North Carolina, and the U. S. Fish and Wildlife Service was started in 1985 because of the large illegal take of black bears. The illegal bear harvest was estimated to be as high or higher than the legal harvest. Most of these bears were killed for their gall bladders, which ended up being sold in Asia. Working until 1988, undercover state and federal agents purchased nearly 300 bear gall bladders, as well as numerous hides, teeth and claws. The agents also went with poachers on numerous illegal hunts in several states. The operation ended with 50 people convicted, with total fines of over $152,000 and active jail terms of 30 days to 3 years.

Operation Spoonbill

This was a joint operation between the state of Missouri and the U. S. Fish and Wildlife Service. Its target was the illegal harvest of paddlefish for their roe (eggs). Three agents infiltrated a network of poachers and egg buyers. By 1990, after 18

months of undercover work, arrests were made on the state and federal charges. A total of 25 people entered guilty pleas. The egg buyers received jail sentences of 21 months, in addition to large fines. Several fishermen were sentenced to 3 to 6 months in jail and ordered to pay restitution to the state.

Operation Pet

In 1989, agents in Tennessee, acting primarily on tips from the public, began a covert investigation into the purchase and sale of native wildlife for pets. Over a dozen species were involved, including bobcats, raccoons, white-tailed deer, and black bear cubs. The agents, posing as owners of a small timber business, were asked by the violators to supply them with animals taken from the wild. After 18 months of investigation, 12 people were arrested on multiple state and federal charges including the felony Lacy Act. All those charges with federal violations plead guilty and were heavily fined and placed on lengthy probation.

Operation Washboard

Freshwater mussels became a valuable fishery in many states for their use in the cultured pearl industry. In the Tennessee portion of Kentucky Lake alone, they were worth $8.8 million. The most valuable of these mussels is the washboard mussel (*Megalonias nervosa).* Because of their value and their slow growth and reproductive rate, minimum sizes have been placed on them in Tennessee and Kentucky. Additionally, several areas were closed to harvest to serve as breeding sanctuaries.

By the late 1980's, some harvesters and buyers began to ignore minimum sizes and sanctuary boundaries. In 1989, Tennessee and Kentucky mounted a joint covert operation targeting the buyers of illegal shells. Because there were hundreds of harvesters and only about a dozen buyers, it was more effective to target the demand rather than the supply. Two man covert teams posed as harvesters with obviously illegal undersized shells. At the end of the investigation, 10 buyers were arrested on multiple charges. Although some charges were later dismissed, most people charged were convicted and received hefty fines and lengthy probation.

Source: *The Role of Covert Operations in Modern Wildlife Law Enforcement.* Thomas H. White Jr. Proceedings of the Forty-ninth Annual Conference, Southeastern Association of Fish and Wildlife Agencies. 1995.

NOMINATIONS OPEN FOR TOP CONSERVATION AWARDS

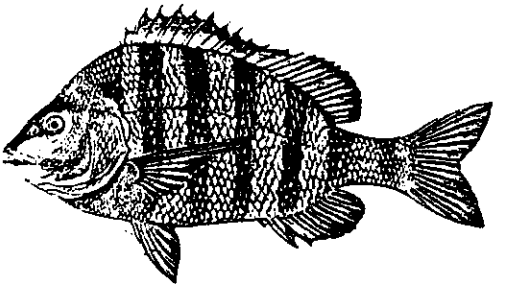
The Louisiana Wildlife Federation has announced that the Governor's Awards Program for Conservation Achievement is again underway. This 35 year old program

gives its prestigious awards in the categories of professional, non-professional, business, educator, youth, elected official, communicator, and organization.

Winners receive a handsome statuette of a wild animal. These coveted awards are made at the federation's annual banquet, the next one of which will be held in Lafayette on February 20, 1999.

Nominations will be accepted until January 26, and anyone can make a nomination. Complete details on the program can be obtained from the Louisiana Wildlife Federation, P O Box 65239 Audubon Station, Baton Rouge, LA 70896-5239. (504) 344-6707.

SHEEPSHEAD RESEARCH



Sheepshead are the member of the porgy family that is most important to Louisiana fishermen. They have found a secure place in gourmet restaurant menus and sportsmen are increasingly targeting this fish for its delicious white flesh.

Biologists at Louisiana State University have studied age and growth of this interesting fish. They collected 805 fish, ranging in size from 9 to 22 inches. Age was determined by counting the rings in their otoliths (ear bones), and their egg masses were taken for study.

The research determined that sheepshead spawn in February, March, and April, with most spawning taking place the last two months. Spawning is thought to take place offshore, but near the coast. Both males and females begin spawning at 2 years old, but not all of the fish are mature enough to spawn until males are 3 years old and females are 4. Sheepshead will spawn several times during each season. Females will spawn 14,000 to 250,000 eggs per spawn, with the average being 87,000 eggs.

Sheepshead are a surprisingly long-lived fish with both males and females in the sample reaching 18 years of age. Growth is most rapid the first 6 to 8 years of their life. They showed a very wide range in their growth rate with some fish being much larger than others, but yet the same age. For example, in 6 year old fish, the range was from 11 inches long and 1.3 pounds, to 22 inches and 7.7 pounds. This makes estimating the age of sheepshead from their size very difficult.

Source: *The Age Structure and Reproductive Biology of Sheepshead (Archosargus probatocephalus) Landed in Louisiana.* J. Render and D. Beckman. Coastal Fisheries Institute, Center For Wetland Resources, LSU. 1988.

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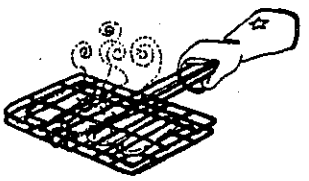
THE GUMBO POT
Herb & Garlic Grilled Fish and Tomatoes

This month's recipe comes to us from Bob Dennie of Geismar, LA. Bob is the former Director of the Information and Education Section of the Louisiana Department of Wildlife and Fisheries, and currently serves as Executive Director of the Louisiana Outdoor Writers Association. Bob assured me that this recipe was good and he was as good as his word.

I used a folding grilling basket and a skinless fillet. With a basket, the fish does not need the skin on it to hold it together. A skinless fillet marinates better and is a lot easier to serve. It also prevents the delicate tomato slices from being damaged on the grill. Any large, white-fleshed fish, such as snapper, catfish or redfish may be used.



1	2-lb fish fillet	1½	tsp liquid smoke
1	12-oz bottle Lawrys Herb & Garlic Marinade	1	large tomato
			Salt and pepper
3	tbsp olive oil		

Cut fillet into 4 pieces and place in a resealable plastic bag. Add ¾ of the bottle of marinade. (Reserve the rest to baste the tomato.) Add olive oil and liquid smoke. Mix well with fillets and marinate in refrigerator for 8 hours. Remove fish fillet pieces from marinade and place on grill basket. Slice the tomato in several **thick** slices and place on basket. Salt and pepper the tomato slices, but not the fish. Close basket and grill over medium-hot fire until fish flakes easily with a fork (10-15 minutes). Baste tomatoes several times with the reserved marinade while grilling. Serves 4.

Sincerely,

Jerald Horst
Area Agent (Fisheries)
Jefferson, Orleans, St. Charles, St. John