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Fish in Trees

Study after study of lotic (flowing streams and rivers) systems have demonstrated the value of coarse woody debris (CWD, or fallen trees) to fish. In salmon streams and rivers and slow-moving bayous, CWD provides more habitat complexity, and generally, more fish.

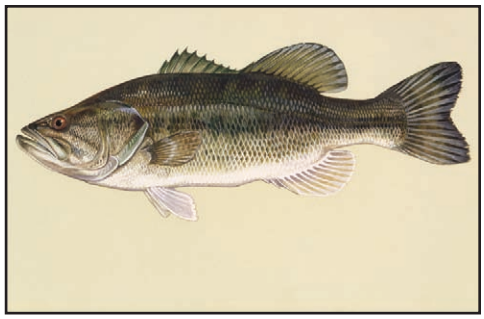
This puts fish populations directly in the crosshairs of some important uses of waterways: navigation and drainage. Particularly in low-gradient waterways (like many larger flowages in Louisiana), trees can reduce the capacity to move water away from inhabited or farmed land. In areas where flooding from a small bayou filled with trees is getting into homes and businesses, you can bet that “clearing and snagging” and dredging will be used to solve the problem. In extreme cases, that bayou then becomes nothing more than a drainage ditch with the minimal fish populations that you would expect in a drainage ditch.

In lentic (pond/lake) systems, studies have also proven the value of trees to fish. Areas with more woody structure have better fishing and hold more fish, particularly the more popular species.

Anglers know that trees in the water are good spots to cast, but may not realize how much those trees add to the health of the whole system. A recent study in Wisconsin demonstrated this in a dramatic way. The researchers actually cleared more than 75 percent of the CWD from one arm of a lake that has two similar branches. One photo showed students in the water cutting and pulling trees; two are using an old-fashioned two-man crosscut saw, a skill not often gained in college.

The de-snagged side was left with 80 logs per shore mile; the control side had 213. And a block net was positioned between the arms. Fish sampling showed no differences before the experiment but dramatic effects afterwards.

Largemouth bass in the de-snagged arm ate fewer fish and more terrestrial prey (frogs, snakes, mice and insects) and grew more slowly. Most of the fish consumed by bass in this lake were yellow perch, which use CWD as feeding and spawning areas and as refuge from predation. After de-snagging, no significant perch reproduction occurred in the treatment arm, while the control arm had successive spawns. Numbers of perch in the de-snagged arm remained low.



Largemouth bass
Photo credit: Duane Raver, U.S. Fish and Wildlife Service

In our waters, the bass/sunfish relationship is most equivalent to the

Yellow perch
Photo credit: Duane Raver, U.S. Fish and Wildlife Service

bass/perch one in Wisconsin. While bluegills don't use CWD for actual spawning substrate, the other responses should be very similar. Although the study lake did not contain much aquatic vegetation, these researchers suspect that in many situations, weed beds probably serve similar roles as CWD.

Any efforts that people make to preserve most of the CWD in systems will pay off in fish. While most folks don't want piles of decaying trees in front of their lake home, many can live with a few trees in the water on parts of their shoreline.

Trees should always be left in the water on undeveloped shorelines. On private water bodies, trees can be added (though small ponds benefit little). Most studies have shown that heavy hardwoods give the most lasting effects, holding more three-dimensional surface area for the longest time. (Sac-au-lait fishermen like to add fresh vegetation periodically, because minnows are drawn to it.)

In streams and bayous, any compromises on snagging and dredging will also make for more fish. In some cases, a bayou will supply adequate drainage without being turned into a straight pipe.

Glenn Thomas

Source: Sass, G. S., J. K. Kitchell, S. R. Carpenter, T. R. Hrabik, A. E. Marburg, and M. G. Turner. 2006. Fish community and food web responses to a whole-lake removal of coarse woody habitat. Fisheries 31:7; 321-330

Regulations to Change for Bycatch Reduction Devices in the Shrimp Fishery

NOAA's National Marine Fisheries Service (NOAA Fisheries Service) is accepting public comment on proposed changes regarding the use of bycatch reduction devices (BRDs) in the southeastern shrimp fishery. The proposed changes:

- Change the bycatch reduction certification criterion for the western Gulf of Mexico.
- Revise and consolidate the BRD Testing Manuals (formerly known as the BRD Protocols).
- Certify new BRDs for use in the shrimp fishery.

BRDs have been required in shrimp trawls since 1997 for the South Atlantic, since 1998 for the western Gulf of Mexico and since 2004 for the eastern Gulf of Mexico. Both the Gulf of Mexico (GMFMC) and South Atlantic (SAFMC) Fishery Management Councils established Bycatch Reduction Device Testing Protocol Manuals, outlining procedures to test and certify additional BRDs.

BRD certification criteria have differed by area. In the western Gulf, BRDs have been certified based on their ability to reduce red snapper bycatch. In the eastern Gulf, BRDs are certified if they reduce the weight of the finfish bycatch by at least 30 percent. Originally, BRDs were certified for the South Atlantic based on their effectiveness at reducing Spanish mackerel and weakfish, but in 2005, the SAFMC changed the criterion to a 30-percent finfish reduction.

The GMFMC is now proposing to modify the bycatch reduction certification criterion for the western Gulf to match the criterion of the eastern Gulf and South Atlantic. If approved, a BRD that reduces the weight of finfish in a trawl by 30 percent would be certified for use in the shrimp fishery of the western

Gulf. This change would make the criterion consistent throughout the jurisdiction of the GMFMC and SAFMC.

With a consistent certification criterion throughout the southeast, NOAA Fisheries Service is proposing to consolidate and revise the testing manuals for the Gulf of Mexico and the South Atlantic. The existing manuals spell out rigorous "one-size-fits-all" testing procedures to be followed by every applicant. The primary change in the manual's procedures would allow the applicant to describe how they intend to test a new BRD. This would allow the applicants additional flexibility for their specific tests. In addition, NOAA Fisheries Service would change the statistical procedure used to evaluate the data collected during a test. The changes are intended to promote additional research on BRDs, while ensuring an acceptable level of statistical precision and accuracy in the results.

In addition, NOAA Fisheries Service proposes to create a "provisional certification" category for BRDs. A provisional certification would apply to a BRD that excludes at least 25 percent of the finfish by weight in a trawl. A provisional certification would be effective for two years. This time period would allow additional wide-scale industry evaluation of the BRD to further refine the design or application of the BRD so it could eventually meet the certification criterion.

Implementing the new BRD certification criterion, along with the revisions to the certification manual, especially the addition of a "provisional certification," would allow NOAA Fisheries Service to certify some new and more effective BRDs for use in the shrimp fishery. NOAA Fisheries Service is proposing to certify the Modified Jones-Davis BRD and provisionally certify the Composite Panel BRD for use throughout the southeastern shrimp fishery. These are new BRDs to the fishery; they have not been certified previously.

In addition, the Extended Funnel BRD is currently certified for use in the eastern Gulf of Mexico and South Atlantic, but it was not certified for the western Gulf. With the proposed change to the certification criterion for the western Gulf, the Extended Funnel BRD would be allowed. However, recent tests in the Gulf of Mexico indicate the Extended Funnel BRD only meets the requirements to be provisionally certified. Therefore, the Extended Funnel BRD would be allowed throughout the Gulf of Mexico, but only under a two-year provisional certification.

All the new tests on the Extended Funnel BRD were conducted in the Gulf of Mexico. The fishery in the South Atlantic is conducted in shallower water, using somewhat different gear and methods, and the bycatch is different from the bycatch found in the Gulf of Mexico fishery. Therefore, the results from the Gulf of Mexico tests do not apply to the South Atlantic, and the Extended Funnel BRD will remain certified for use in the South Atlantic.

Written comments on these proposed changes must be received no later than 5 p.m., Eastern Time, Nov. 12, 2007. You may submit comments, identified by 0648-AU59, by any one of the following methods:

- Electronic submissions: Submit all electronic public comments via the Federal eRulemaking Portal at http://www.regulations.gov
- Fax: 727-824-5308, Attn: Steve Branstetter
- Mail: Steve Branstetter, Southeast Regional Office, NMFS, 263 13th Avenue South, St. Petersburg, FL 33701.

All comments received are a part of the public record and will generally be posted to http://www.regulations.gov without change. All personal identifying information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly

accessible. NOAA Fisheries Service will accept anonymous comments. Comments received by Nov. 12 will be considered by NOAA Fisheries Service in its decision to approve, disapprove or partially approve the actions.

Copies of the GMFMC regulatory amendment proposing the change in the certification criterion, which includes an Environmental Assessment, a Regulatory Impact Review and an Initial Regulatory Flexibility Analysis, is available in electronic format from the council's Web site at http://www.gulfcouncil.org, or by contacting the council at 2203 North Lois Avenue, Suite 1100, Tampa, FL, 33607; phone: 813-348-1630; fax: 813-348-1711; e-mail: gulfcouncil@gulfcouncil.org.

Copies of the revised BRD Testing Manual are available by contacting NOAA Fisheries Service's Southeast Regional Office (SERO) at the address listed above. The proposed rule outlining all these changes, including complete descriptions of the new BRD designs, is available in print from SERO at the address listed above, or in electronic form from the Federal Register Web site: http://www.gpoaccess.gov/fr/index.html (search proposed rules for "AU59").

Aquatic Ecosystem Management: Part 2 – *IDENTIFYING THE PROBLEMS*

Aquatic ecosystems are vital to humanity. Unfortunately, they are often viewed as a commodity. This outlook places emphasis on species with high monetary values while neglecting the significance other species play in ecosystem health. This article discusses major problems that result from human impacts on aquatic ecosystems - grouping an inexhaustible list into five categories.

1. *Competition for water* – Water is essential for all life, yet many people vie for their claim of ownership. This results in a lack of true resource ownership, creating managerial problems with socio-political boundaries. Agriculture needs both surface and groundwater to irrigate crops that feed an ever-growing population. Industry is dependent on water for cooling and operational functions. Hydroelectric and nuclear power plants require water to satisfy increasing energy demands. Municipal use includes sewage treatment and simple hydration. How can a finite resource meet the demands of so many?

   Regulations have been put in place, but historically they failed to acknowledge the importance and role of ecosystems. In the eastern United States, the Riparian Doctrine essentially allowed those who live near water to do with it as they please. In the water-poor western United States, the *Doctrine of Prior Appropriation* determined water rights. For example, the *1877 Desert Lands Act* has over-appropriated water to the degree that the once "Mighty Colorado River" often does not make it to the ocean. Fish and wildlife concerns were rarely considered 100 years ago. Oregon was actually the first state to appropriate water for fish and wildlife in 1955.

2. *Commercial fishing pressure* – With the industrial revolution, commercial fishing technology advanced faster than fish stocks could handle. The systematic overexploitation of the highest, and then subsequently lower, valued species illustrates the impact of the combined effect of efficient gear and excessive fishing.

   An interesting example is the destabilizing effect of overfishing in the Black Sea over the past 50 years. Scientists documented two major "regime shifts" of the ecosystem. They found that prior to the 1970s, the top predators (dolphins, mackerel, bluefin tuna, etc.) were all effectively removed from the ecosystem. Without predation, small plankton-eating fish (anchovy, sprat, etc.) increased in number. As a result, the fishing industry changed its focus during the 1970s and 80s, eventually collapsing these stocks.
   This second regime shift allowed the invasive comb jellyfish (*Mnemiopsis leidyi*) to flourish in

the fish-devoid waters. A European Environmental Agency report in 2005 found that comb jelly accounted for 90 percent of the Black Sea's entire biomass at one point. This "trophic cascade" was rooted in the relationship between the planktivorous fish and the comb jelly – the fish are better suited to take advantage of a lower abundance of zooplankton, while the jellyfish need high levels in order to reproduce in vast numbers. Thus the recognition that fishing influences not only the fish stocks, but also the ecosystems, is essential for modern management.

3. *Recreational fishing pressure* – Recreational fishing continues to gain popularity in the United States. In 2001, 34.1 million anglers spent a large amount of money and time fishing. Recreational anglers outnumber commercial fishermen 200/1, providing them with a powerful political voice. One problem is that this voice tends to emphasize species that are desirable and easy to catch. As a result, many Americans can enjoy trout fly-fishing and probing for that lunker largemouth, but few realize the importance of the elusive native species on ecosystem health. In some cases the removal of larger trophy-size fish, and the targeting of spawning fish can impact the stability of certain populations.

4. *Habitat loss and degradation* – Agricultural, industrial, and municipal pollution all have an impact on the health and stability of ecosystems. Despite the catchy slogan that "dilution is the solution to pollution," fertilizers, pesticides, chemicals and nutrients continue to alter the balance of our aquatic ecosystems. In fact, sediment from agriculture and development runoff is the primary pollutant in the United States.

   Additionally, reservoir development can reshape the face of a stream environment into something unrecognizable to the native species: look at the blockaded migratory spawning runs of salmon, shad and striped bass. Channelization and dredging for transportation purposes are common activities that we here in Louisiana know well. The crisscrossing of our marshes by oil and gas pipelines has disrupted the hydrology in areas already starved of the nourishing sediment and nutrients once supplied by cyclic flooding. This downward spiral of subsidence, saltwater intrusion and vanishing wetlands has imperiled the essential nursery habitat of Louisiana coastal marshes.

5. *Exotic organisms* – The introduction of non-native species has brought disease and parasites, caused habitat alteration, and intensified competition and predation.

   Regardless of the cause or intent of an introduction, exotic species often find an unoccupied niche or just plain out-compete native species. An intriguing example comes from the Great Lake, where the spiny water flea was accidentally introduced, probably in ships' ballast water. Unfortunately, native species cannot consume the water flea, and are in competition with it for zooplankton, particularly daphnia. As do most prey, the native daphnia have begun to adapt to avoid the predation of the spiny water flea. As numbers of water fleas increased, daphnia concentrated in deeper, darker waters – possibly having learned to smell their pursuers. The tactic enabled many to survive, but the colder water caused their community's birth rate to plummet. Some daphnia also grew large spines, making them harder to eat. Unfortunately this adaptation slowed them down, hampering their own ability to catch food. The study found that such "non-lethal" effects from evading predators could do ten times more damage to the daphnia population than for some to get eaten. This is just one example of the estimated 183 invasive species in the Great Lakes. There also are many invasive species that occupy Louisiana waters, all of which have some (usually difficult to measure) degree of impact to native ecosystems.

Each of these examples of human impacts to aquatic systems can be amplified by others, as well

possibly being exacerbated by climatic and biotic responses. Once identified, aquatic ecosystem problems begin to illustrate the obstacles faced by fishery managers. As the body of knowledge regarding aquatic ecosystems grows, hopefully scientists, managers and policymakers will join forces to view and manage aquatic habitats in a holistic manner.

- Craig Gothreaux

Sources:
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Kohler, C.C. and W.A. Hubert, editors. 1999. Inland fisheries management in North America. 2nd Edition. American Fisheries Society, Bethesda, Maryland.

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NMFS Seeking Comments on Red Snapper Regulations

NOAA's National Marine Fisheries Service is seeking public comment on the proposed rule to implement measures to rebuild red snapper in the Gulf of Mexico. These measures are outlined in the joint Amendment 27 to the Fishery Management Plan (FMP) for Reef Fish Resources of the Gulf of Mexico and Amendment 14 to the FMP for the Shrimp Fishery of the Gulf of Mexico (Amendment 27/14). The proposed rule was published in the Federal Register on Oct. 23, 2007, and the comment period ends Dec. 7, 2007.

The proposed rule would reduce the red snapper catch, bycatch and discard mortality in the directed commercial and recreational fisheries, and the shrimp fishery to end red snapper overfishing and rebuild the stock. A March 2007 court ruling on legal challenges to the Gulf of Mexico Fishery Management Council's (Council) existing red snapper rebuilding plan requires the plan be revised by Dec. 12, 2007. Revision to the plan must ensure a reasonable probability of ending overfishing by 2010 and rebuilding the stock by 2032.

Elements of the Proposed Rule:

- Fishing mortality on red snapper would be reduced through a reduced commercial quota of 2.55 million pounds and a reduced recreational quota of 2.45 million pounds.
- Discard mortality in the directed fisheries would be reduced by:
    1. Reducing the commercial minimum size limit to 13 inches total length.
    2. Requiring the use of venting tools, dehooking devices and non-stainless steel circle hooks (when using natural baits) for all reef fish fishery sectors.
- Shrimp effort, and the associated bycatch discard mortality of juvenile red snapper, would be controlled through time-area closures to reduce red snapper mortality 74 percent from the 2001-2003 time period. This reduction could be modified in the future as red snapper rebuild.
- The recreational harvest would be constrained to the new quota by reducing the recreational bag limit from four fish to two fish, setting the bag limit for captains and crews of for-hire vessels at zero, and shortening the recreational fishing season to June 1-Sept. 30. The 16-inch total length minimum size limit for recreational fishermen would stay the same.

NOAA Fisheries Service disapproved the proposed action in Amendment 27/14 that would assume

recreational fishing effort and landings have declined 10 percent below average since the 2005 hurricane season and will remain at that level indefinitely. As a result, the length of the recreational fishing season supported by the red snapper recreational bag limit and minimum size limit is 122 days (June 1-Sept. 30), rather than 154 days (May 15-Oct. 15) as proposed by the Council. NOAA Fisheries Service determined the assumption of a 10 percent reduction was not based on the best available scientific information.

Written comments must be received no later than 5 p.m., Eastern time, on Dec. 7, 2007. You may submit comments, identified by 0648-AT87 on the comments, by any one of the following methods:

- Electronic Submissions: Submit all electronic public comments via the Federal eRulemaking Portal http://www.regulations.gov. To find the rule, select Document ID under Optional Step 4 and enter NOAA-NMFS-2007-0749 in the adjacent box. Click submit to find the proposed rule. Follow instructions on how to submit comments for this proposed rule.
- Mail: Peter Hood, NOAA Fisheries Service, Southeast Regional Office, Sustainable Fisheries Division, 263 13th Avenue South, St. Petersburg, FL 33701
- Fax: 727-824-5308, Attention: Peter Hood

All comments received are a part of the public record and will generally be posted to http://www.regulations.gov without change. All personal identifying information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information. NMFS will accept anonymous comments. Attachments to electronic comments will be accepted in Microsoft Word, Excel, WordPerfect or Adobe PDF file formats only. Copies of joint Amendment 27/14 and supporting documents are also posted with the proposed rule. These can be obtained from the Federal eRulemaking Portal http://www.regulations.gov following the instructions provided above to find the proposed rule for comments. The proposed rule is also available via the Internet at http://www.gpoaccess.gov/fr/index.html (do an advanced search under proposed rules for “page 59989”). Printed or electronic copies of the rule and joint Amendment 27/14 can be obtained from the Southeast Regional Office by contacting Peter Hood (see address above).

Comments must be received by Dec. 7, 2007, to be considered by NOAA Fisheries Service in its decision on the final rule. All comments received by NOAA Fisheries Service specific to the proposed rule will be addressed in the final rule.

Marina Directory Available Online

The 2007 Louisiana Marine Directory, published by Louisiana Sea Grant, is available online at http://www.laseagrant.org/adserv/ext/management.htm. The free download contains addresses, phone numbers, and lists services and facilities available at more than 60 recreational marinas throughout the state. For more information contact Roy Kron at 225-578-6564 or rkron@lsu.edu.

Underwater Obstructions

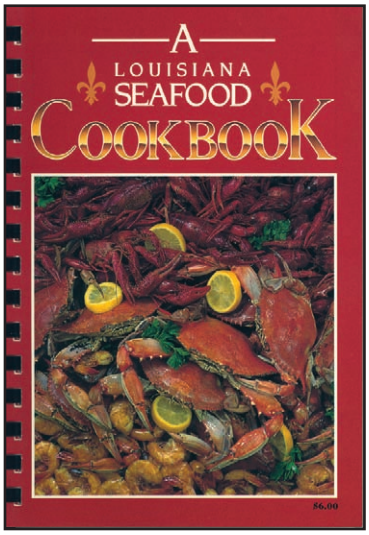
In accordance with the provisions of R.S. 56:700.1 et. seq., notice is given that seven claims in the amount of $27,349.89 were received for payment during the period July 1, 2007 – Sept. 30, 2007.

There were 24 claims paid and 4 claims denied.

Latitude/Longitude Coordinates of reported underwater obstructions are:

29 01.481	89 14.189	PLAQUEMINES
29 17.047	89 57.292	JEFFERSON
29 17.689	89 54.202	JEFFERSON
29 18.401	89 59.087	JEFFERSON
29 51.278	93 21.003	CAMERON
29 59.258	89 09.055	ST. BERNARD
30 10.717	89 45.167	ST. TAMMANY
29 07.558	90 32.463	TERREBONNE
29 12.076	89 59.919	JEFFERSON
29 12.145	90 02.382	JEFFERSON
29 28.969	90 00.682	JEFFERSON
29 42.456	89 43.906	ST. BERNARD
29 47.960	89 21.250	ST. BERNARD
29 49.012	89 39.022	ST. BERNARD
29 07.191	90 06.514	LAFOURCHE
29 10.400	90 07.611	JEFFERSON
29 16.919	89 55.264	JEFFERSON
29 17.436	89 51.924	PLAQUEMINES
29 17.521	89 57.257	JEFFERSON
29 20.566	89 47.772	JEFFERSON
29 27.406	89 58.984	JEFFERSON
29 32.650	89 53.817	PLAQUEMINES
29 39.833	90 07.539	JEFFERSON
29 48.276	89 48.754	ST. BERNARD

A list of claimants and amounts paid can be obtained from Gwendolyn Thomas, administrator, Fishermen's Gear Compensation Fund, P.O. Box 44277, Baton Rouge, LA 70804, or you can call 225-342-0122.

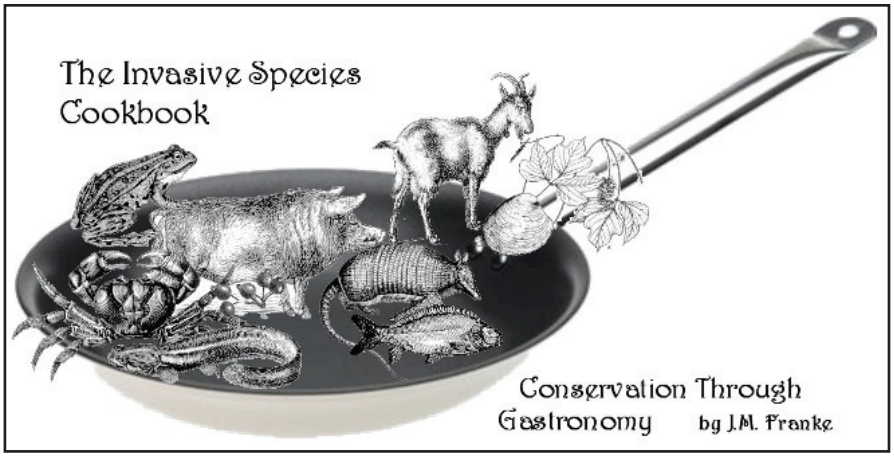


Looking for a Holiday gift?

A Louisiana Seafood Cookbook, is available for $6 from Louisiana Sea Grant. Make checks payable to Louisiana Sea Grant College Program, 105 Sea Grant Building, LSU, Baton Rouge, LA 70803.

THE GUMBO POT
Carp Burgers

This month's recipe was provided by Joe Franke, and comes from the new Invasive Species Cookbook (info@bradfordstreetpress.com). The carp burger recipe must be for common (German) carp, since the soaking routine is appropriate for that type of bloody meat. The newer invasives, Asian carps, have a much clearer, white meat. The Y-bones will disappear with double grinding and hot oil cooking, but the book also has directions on de-boning these fish. The recipe is not too different from some of our fish ball recipes, minus the sage. Careful with this herb; we don't use it much down South, and some folks hate it. For them, try garlic and minced parsley.



If you can't beat 'em, eat 'em. © Joe Franke and Bradford Street Press

Carp Burgers

4 pounds carp
1/2 teaspoon sage, powdered
1 teaspoon celery salt
1/4 cup onion, minced
1/4 teaspoon black pepper
1 teaspoon baking soda

Fillet carp, skin and remove rib sections. Mix baking soda with enough water to cover fillets and soak overnight. Rinse fillets under cold water and dry with paper towels. Run fillets through meat grinder with fine blade twice. Mix onion, sage, celery salt, pepper and carp well in a large bowl. Form into patties, roll in dry pancake flour and drop into hot oil. Fry about 2 minutes on each side until brown, drain on paper towels and serve with horseradish, mustard or shrimp cocktail sauce.

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