

# The Lateral Line

Volume 2, Issue 9

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**Upcoming Events:**

- HCCC February meeting on the 18th.
- HCCC Spring auction March 11th.

Cover Photo:  
*Xystichromis phytophagus*  
by Dave Hansen

# BAP Report

February was a productive month and began with an entry from Greg (GAS) with his spawning of *Synodontis multipunctatus*. Congrats to you Greg on this class "C" which I consider a difficult one to get. Charles (Tangfish23) enters into February with a 1st species spawn of the *Callochromis pleurospilus*. A second entry of the *C. pleurospilus* was submitted by David (Dockusan). Congrats to you both with these spawning. Greg added to his BAP list with the spawning of *Xystichromis phytophagus*. Congrats again Greg. And Dave (Mullet) first entry this year is a spawning of *Pseudocrenilabrus nicholsi*. Congrats Dave and by the way you are closing in on the next level. Charles fish have been very active and he has four more entries this month. They include *Cynotilapia afra*, *Neolamprologus brichardi*, *Pseudotropheus acei* and *Protomelas taeniolatus*. Way to go, Charles, and what's your secret, and congrats again. Almost forgot to give congrats to Jennifer (Princer7) on her second BAP spawning this year with the *Julidochromis Marlieri*. Hope the fish will make the coming month just as productive.

As some of you may have noticed, some of the available BAP fish disappeared from the availability list. This was due to the Spring auction where they helped raise money for the club. As more BAP entries are submitted, you will notice the list growing once again.

■ Jim Beck

Current Standings	
Name	YTD
Charles	165
Greg	85
Jim	60
David D.	40
Lisa	40

Current Standings (cont)	
Name	YTD
Jennifer	35
Diane	30
Dave H.	20
Nick	20
Robert	5

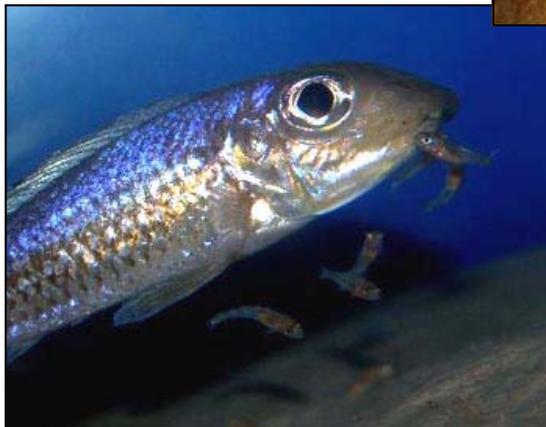
# HCCC Monthly Photo Contest



**First Place**  
Donald Davis  
*Tropheus mpulungu*



**Second Place**  
Jennifer Prince  
*Lamprologus brevis* "Mtoto"  
Congo Zebra



**Third Place**  
John Yull  
*Asprotilapia leptura*

Judging by Rusty Wessel

**Species Profile:*****Xystichromis phytophagus***

The genus *Xystichromis* is rooted in the Greek "xyster" meaning scraper which is indicative of the cichlid species comprising this group.

These fish are small (in the 10cm range), colorful, and to some degree incorporate algae scraping into their diets. The outer teeth are

mostly bicuspid while the inner are lined in 4-6 rows, are large and of tricuspid structure.

The intestines are coiled and 3-4 times the body length.

There are a number of undescribed fish that fit the *Xystichromis* assemblage including the sp. "flameback".

The *Xystichromis* genus share close affinities

with *Neochromis* and *Astatotilapia* but differ in cranial structure and dentition.

*Xystichromis phytophagus* was once found in Ugandan waters of Lake Victoria near Jinja and Bunjako as well as Kisumu Bay Kenya. Today this species is found in Lake Kanyaboli Kenya, a small lake in the Yala Basin. This area is an extensive papyrus swamp which has acted as a protective barrier for species which the Nile perch (*Lates niloticus*) preyed upon. Lake Kanyaboli has a surface area of 10.50 km<sup>2</sup> and an average depth of 3.0m. The entire Yala Swamp watershed is in danger of being drained

to provide agricultural areas for a growing population. This region is a world renowned birding expanse as well.

My first experience with *Xystichromis phytophagus* occurred in 1999 when I obtained a small group of fry that were descendants of

Loiselle's wild stock. This group provided one very beautiful male with coloration that would have to be seen in person to be fully appreciated. It was obviously apparent why the common name of "Christmas fulu" was pinned to this species. Unfortunately that winter my region was hit

with a large ice storm and in the ensuing power outage I lost my group. In the time since I had been searching for this species but many of the fish I found did not have the same coloration or even body shape of my original group. In the spring of 2005, a fellow hobbyist who shares my affliction for the cichlids of Lake Victoria sent me a dozen very small fry labeled "phytophagus". These were placed in a 20 gallon tank with a sponge filter to grow. I fed Cyclop-eeze® and crushed flake to the young. They grew rapidly and after six months were large enough to be placed in a 55



Photo by Dave Hansen

gallon tank where they remain today. I was extremely happy to see the coloration these cichlids developed and are even more colorful than my initial colony that was presumably nearer to wild stock.

Greenwood suggested that *Xystichromis phytophagus* did not graze algae as many similar species did, but actually obtained diatoms from biting into the plants themselves (Greenwood, 1969). Favored habitat is over a sandy bottom in areas of dense plant growth. Relating this information to aquatic husbandry, *Xystichromis phytophagus* appreciates some greenery in its diet. This can be easily supplied with a good spirulina flake. Good quality flake food with occasional treats of brine shrimp or the like will serve well to conditioning the "Christmas fulu".

Our tank décor is quite simple. The substrate is about 5cm deep and consists of light colored pool sand. A formation of rockwork on one end seems to be a gathering point for the colony but does not appear to serve a territorial purpose nor do the fish retreat into it when frightened. I don't use live plants with this species but have heard another reputable aquarist recommend the use of hornwort planted in strands (Newman, 1997). My group shares their tank space with a couple *Synodontis ocellifer* which has been a good mix. We do not alter our water as it comes from the tap at pH of 8.6. Readings from Yala Swamp range from 7.5-8.2 pH (Loiselle, 1996). I contend that when maintaining species of cichlids from the Victorian region, parameters are not near

concerning as is quality. Frequent water changes as well as good quality filtration will suffice for maintaining a healthy colony of *Xystichromis phytophagus*.

The mature male *Xystichromis phytophagus* is second to none in coloration. The head is a light blue-grey and has a convex cranial slope. The upper and lower jaws extend equally and are lined with bright blue lips. Two horizontal bars cross the forehead, one just above the lips, the other at mid eye level. The top of the forehead on down to the gill plates is purple. Immediately behind the gills and along the back is colored orange-red. The abdomen is lime-green and extends halfway up the flanks and laterally onto the caudal peduncle. The frontal portion of the dorsal fin is powder-blue. The spines on the back half of the dorsal are red. This red coloration is also found on the caudal fin. The pelvic fins are jet-black with the first ray extending slightly beyond the others. The anal fin is light blue with a red blotch frontally. A small number of egg spots dot the back portion at its base. Two

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lines of black blotching streaks the body mid-way and frontally along the lateral line. Several vertical bars are visible to some degree that is mood dependant. The female *Xystichromis phytophagus* is a dull gold color with a yellow tinge to the fins. There is slight sexual dimorphism with males reaching 11cm and females 9.5cm.

The male *Xystichromis phytophagus* will excavate a pit at the base of an object (usually rock). This activity is a certain indication that procreation is imamate. I have found this species to be rather docile in comparison to other furu however, with the onset of breeding, some territorial displaying and defending of the pit area takes place. These displays consist of fin flaring and short runs at rival males. The male will shimmy to one side with fins flared each time his ripe female approaches. In between dancing to his female and excavating his pit, the male defends against conspecifics nearing his territory. The female will eventually give in to the males advances. The protrusion of an ovipositor on the female is a sure sign that spawning is certain. The actual act of spawning will occur in the male's pit. The typical *haplochromine* method of shaking and circling, dropping eggs, nipping at the males egg spots and picking them up is employed by this maternal mouth brooder. *Xystichromis phytophagus* is not a particularly tough species to coax into spawning. It is highly prolific and broods of 50 fry are not uncommon. The gestation period is 18 days. The female will tend her fry for another two weeks. I strip the female at 16 days

post spawning. At this time the fry have absorbed most of their egg sac and will take first feedings of Cyclop-eeze® and powdered flake. The young grow rapidly reaching maturity in 10 months.



Photo by Greg Steeves

The native habitat of *Xystichromis phytophagus* is shrinking rapidly. This wonderful little cichlid remains intact in as part of the LVSSP. Stable populations reside in hobbyists' aquariums as well, and it is from this latter group that good quality future stock of this Victorian gem will endure.

■ Greg Steeves

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Greenwood, P. H. 1980; "Towards a phyletic classification of the 'genus' Haplochromis (Pisces, Cichlidae) and related taxa. Part II; the species from Lakes Victoria, Nabugabo, Edward, George and Kivu". Bull. Br. Mus. Nat. Hist. (Zool.). 39 (1): 1-101.

Newman, Lee, 1997; "Aquarium Husbandry of the Christmas Fulu, Haplochromis (Xystichromis) phytophagus". Cichlid News Oct. Vol. 6 No. 4. 18-22.

**Species Profile:*****Julidochromis regani* “Kipili”**

*Julidochromis regani* is a cave brooder native to the shallow intermediate habitat of Lake Tanganyika. This species has a lake wide distribution and has been found from Bujumbura and Nyanza in Burundi, from Kigoma, Msalaba, and Kipili in Tanzania, from Kalemie in Zaire, and from Cameron Bay in Zambia. I obtained about twelve 2-3" fish from Hot Cichlids. Both male and female exhibit the same color pattern, yellow body with five black horizontal stripes and blue edging on the dorsal and tail fin.

Males achieve a size of 10cm and the females are the larger of the two, achieving a size of 13cm.

The fish were placed in a 20 long to pair up naturally which didn't take long. As the fish paired up they were moved to either a 10 or 20 gallon species tank, which contained pool filter sand and several pieces of lace rock made to resemble a cave. The tanks are filtered by an air driven sponge filters and the tank temperature is 78-80 degrees with a ph of 8. I perform weekly water changes equal to 20-25% off the tank volume. I use fluorescent lighting for duration of 12-14 hours each day. The fish are fed HBH Krill pellets, Omega one cichlid flake and Dainichi Ultima.



Photo by Robert De Leon

When spawning the color of both fish intensifies. After a few days of courting by the female, which consisted of her shaking, the pair chose the cave I provided for them. The female entered and assumed an upside down position and began to place the eggs on the ceiling of the cave and then the male entered and assumed the same position to fertilize the eggs.

The pair laid approximately 15-20 greenish/gray eggs. About 10 days or so I saw several

1/8th inch long fry swimming close to the surface of the spawning site. I started the fry on freshly hatched baby brine shrimp and Cyclop-eeze. After a week or so I added crushed flake to their diet. The fry have a color pattern similar to the parents.

With this particular species, fry can be left with the parents until they achieve a size of an inch or so. The parents will continue to breed and the larger fry will move to the outer perimeter of the spawning area and will provide security for their smaller siblings. Once you don't notice any smaller fry swimming around or the larger ones hanging near the surface it's time move them to a grow out tank.

While breeding *J.regani* wasn't too difficult

there are a couple of things I would have done differently. One is to add some type of dither fish that stays at the surface and not bother the parents or eat the fry. By adding them it will lessen the chance of the pair bond breaking down. The second thing is never use a bare

bottom tank, one pair that I did place in one, did not breed until there was a thin layer of algae growing on the bottom. Despite this, I would recommend all hobbyists give one of several *Julidochromis* species a try. You will not be disappointed.

■ Charles Skillern

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### Species Profile:

## *Tropheus* sp. "Black" Bemba orange flame

My definition of *Tropheus* Black Bemba: WOW! Let me start by saying, "WOW"! I say that now, but I was very hesitant at first on adding *Tropheus* to my hobby. I have heard that they are not the easiest to care for. Susceptible to disease and individual losses caused by others in the group. Also losses caused by inattentive care and maintenance is a reason for concern. Did I want to commit to taking care of *Tropheus*?

After a month of "decision making" and constantly searching through the web and harassing other *Tropheus* owners for information and answers to my doubts, I decided to give them a try. Several reasons lead to this decision. I have a 75 gallon tank that was occupied by *calvus* and *compressiceps*. I enjoy this species because of their stature and regal appearance, but they did not offer much in the way of movement and activity. Cost of *Tropheus* of course played an important part of the process. Individual prices and the fact you would need to purchase a "colony" which could be any number from a eight to thirty depending on tank size. Feeding and water maintenance would be a challenge. The *Tropheus* was my answer to creating move-

ment in the tank and the cost was answered by Robert. Those who are members of the Hill Country Cichlid Club know of Robert by his forum name of "Ripple". I was ready for the maintenance challenge even though I consider myself a novice in the hobby.

*Tropheus* sp. "Black" Bemba orange flame" is found in the northern parts of Lake Tanganyika. The general areas include Ubwari peninsula near Magara in Burundi and in Tanzania near Bulu Point and Cape Kungwe. The climate is very tropical which suits the *Tropheus* with the warm water temperatures especially around the rocky shoreline in the 5 to 7 meter range (16 ½ - 23 feet). The algae covered rocks which not only furnish the main food source but create numerous caves and holes for safety and exploration. Knowing this information should help in the setup of a *Tropheus* tank. I normally have water temperature in all of my tanks set at 80 degrees Fahrenheit. For the *Tropheus* I raised the temperature to 82 degrees F (27.7 degrees Celsius) and have holey rock stretching from one end to the other. Not only are there rocks in front but I have a 3-D background with numerous holes which allow entry

and exits to the area in back of the background. There are no plants either live or artificial occupying the tank. The substrate is small to medium gravel which is no problem for the *Tropheus* to pick up and move around the tank. The tank is filtered by two Emperor 400's which not only filtrate but create water surface movement.

I mention the maintenance challenge in keeping *Tropheus* which led me to buy my first water test kit. I keep mostly Malawi Cichlids and they can endure extreme water changes that take place over a short period of time when water maintenance is overlooked periodically. This can not be said with *Tropheus*. I have started keeping records and testing the *Tropheus* tank

water. My other fish are fed once a day and water change of 20% every 7 days. My feeding of the *Tropheus* is three times a day: Two feedings consisting of a veggie mix of *Tropheus* flake, pure Spirulina, and HBH Graze flake. One feeding is Dainichi Veggie Deluxe baby sinking pellets, which has now been excluded and is substituted with the veggie mix, due to the presence of fry. All water tests results are within limits, with the exception of the nitrates. I am still high in nitrates with 70 PPM. I am in the process of increasing the percentage and frequency of the water changes. Though still a bit high in the nitrates, the presence does increase the growth of the algae, which is a constant food source. The fact that the fluorescent lights are on

approximately 15 hours daily, may also aid in the algae growth. The fry are not feed any other special foods and receive the same as the adults, except in the form of a finely crushed flake.

The *Tropheus* maximum length in nature shows to be around 13 cm (5.1 inches), in the aquarium the length will be slightly shorter



Photo by Spencer Jack

both in the male and females of which the male will be the largest. The color on the male is black from nose to tail fin. A red vertical stripe runs through the middle of the body from the belly up through the dorsal fin. The stripe varies in width and intensity, depending on sex and ranking in the colony. The stripe in the

dominant males is wide, and a solid red color. The "other's" stripe is not a solid color but varies, it may be lighter to dark and vice versa. Also it may not be a solid stripe but maybe a partial stripe or just one thin line. I am not sure in other types of *Tropheus*, but the stripe is like a finger print, showing different designs for each fish. These designs have not changed in

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pattern in the small amount of time I have kept them. The dominant males do have the widest and the reddest of the stripes.

Speaking of the dominant males, which I have two in my setup: One controls one end of the tank, behind a long horizontal holey rock and the other controls the opposite end from behind a tall vertical holey rock. Though they control from both ends, they tend to lure prospective females behind their rocks to induce spawning. Though they control and spawn behind these structures, it does not limit them to the rest of the tank. Both of the males stretch their control to the middle of the tank. When the two tank bosses do cross paths normally in the middle of the tank, they show their dominance. They will shake and vibrate in a circular motion, showing as much red as possible. This confrontation sometimes ends in one nipping the other and chases him back to the other end of the tank. But other times the battle is visible by the locking of jaws with jerking and twisting of their bodies. This continues till surrender and flight by one of the combatants. Saying that *Tropheus* are aggressive would be correct. Although there is constant nipping and thumping going on, keeping the colony under control, there has not been any damage observed at this time. No scales missing, no fins nipped, nor any one forced to stay in a corner and not move. There is always movement, some more swiftly than others and some more violent than others. Because of their temperament and food requirements, they do not play well with others. Since the mainstay is vegetable matter, only a few fish might meet these requirements. I believe one such

species is the *Eretmodus cyanostictus* (Goby Cichlid).

The *Tropheus* took up residence in the 75g on November 8th, 2005 and would you believe



Photo by Robert De Leon

there was a female noticeably holding on November 15th. When I say noticeably I mean that she may have been holding days before. The swelling of the bugle cavity is not very large when the females are first holding eggs and was hard for me to recognize. But it is getting easier, since it appears spawning rituals takes place all the time. When spawning takes place, the male as in displaying is dominance,

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will display his best red stripe and vibrate his body and tail fin in an attempt to entice the female away from the colony. The reason for luring the female away is that if a spawning attempt takes place in the open, other males create confusion by trying to get in on the act. Once in seclusion the vibrating display continues with the male laying on his side releasing his milt which in turn is picked up by the female and thus fertilizes the eggs stored in her mouth. I have observed one of the dominant males during the spawning and when the female was chased off by my intruding males, the dominant male would rub his belly alongside the rock. This was observed almost each time before he left the site. Shortly the female returned and spawning would resume. When the male would leave to chase off uninvited males, the female would pick at the rock as though she was eating. After observing this routine between the male and the female, I realized she was picking in the same line that the male had previously rubbed himself. I believe she was retrieving milt left by the male or she was eating in a spot that had a strong scent of the male. But because I have not heard of this type on behavior it may have been random acts of both fish. I have not observed this behavior again (yet) and am attempting to verify the observation with authorities in the trade. *Tropheus* are maternal mouth brooders and the female cares for the fry until they are free-swimming. Once free-swimming there is no parental care and she will get back in the flow with the rest of the colony.

On November 29th, she released one fry (or it escaped) and it was visible during feeding time. I was surprised to see fry, because it was visible

that the female was still holding. The next day the female was not showing sign of holding any fry, but only one fry was visible in the tank. The fry appear to be close to ¼ inch long when free-swimming. The body of the fry is light brown or tan, with darker brown vertical stripes. The fry stay close to the substrate and in the rocks and only venture out during feeding time, and not very far from safety. As of



Photo by Robert De Leon

December 1st only 3 fry were accounted for. The fourth fry was noticed about 4 days later.

My first assumption on the care of the fry was that the female would release and then rejoin the flow of the colony, but that has changed. I observed another female positioning herself under a small overhang of holey rock. She remained there for days and slowly would let one or two fry out and they would return back to her if other *Tropheus* appeared. In another two days she had released a total of four fry and even though they stayed close, she would not let them back in for safety, but instead would run off intruders. After the fry had moved off from her location, she would return to her re-

lease site momentarily and then re-enter the group. Unlike some cichlids, the *Tropheus* females will continue to eat during the time span she is holding the fry.

I would not recommend *Tropheus* as a first time Cichlid to begin your hobby with. You must be very dedicated in the care and feeding of this fish. Unless you do the necessary research and gather as much information as possible and are prepared to follow through with the daily routines, this fish is not easiest to care for. I am doing water test every 3 to 4 days and changing the water every 4 days with a 30% change of water volume. I may increase the amount of water changed or cut down to twice a day feedings. Once the feeding and water changes produce a desired level in the testing of the water, and I am comfortable with the results, then the testing will not be as frequent.

The only thing that I have not mentioned is that before you begin: decide if this tank will be for display or for breeding. Display is for visual pleasure with no attempt in the future to retrieve adults or fry from the tank. This would be a hardship to remove and replace the structures in the tank each time a fish is to be removed. Not only stress on you, but on the fish. A change in their landscape would require them to regain control over the pecking order. If you are interested in breeding and attempting to keep the fry, then the tank setup will be very different. I have heard from breeders that there is no rock or structures of any kind, except for a few flower pots. The pots are placed on their side through out the tank. In this manner the pots can be easily removed when it is time to remove a fish

from the tank. Also the information I have gathered is that once the colony has become "established" there should be no adding of more fish to the colony. This also applies to removing a female holding fry and then placing her back in the group later on. The way around this is to remove the female at night once they are all settled and when it is time for her to re-enter the group she is placed back during darkness.

You can tell by the first few lines of this article that I have enjoyed these fish immensely so far. Not only have they been very interesting, they have been amusing to watch. There are 20 Bemba occupying the tank and there is constant movement with them keeping the pecking order in tact and spawning. I do not know if other *Tropheus* are this easy to spawn, but these are very prolific breeders.

At the time this article was started there were three fry. Now there four more with two females still holding. No matter which way you present your *Tropheus*, they are interesting, personal and fun to watch. This is still a work in progress, but I am enjoying the fish.

■ *Jim Beck*

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## Aquarium Photography Part II

In the January issue we discussed some basic principles of photography. How do we apply them? Well, you need a camera and a lens. This part of the series will focus on some of the equipment associated with photography including bodies, lens, and flashes.

Let's discuss the bodies first. I am going to focus on DSLR for the most part. There are some wonderful point and click cameras, and they are great for snapshots. They are tough to use for our hobby though. They typically don't do very well in low light and the biggest obstacle I always faced was shutter lag. Considering many of our subjects are fast moving, the lag can be very frustrating. The next step up is Digital Single Lens Reflex (DSLR) cameras. There are many manufactures but the 2 biggest players to this point are Canon and Nikon. I personally use Canon and have for many years. I feel it is useless to say one is better than the other and like cars it is very much a personal preference. Both offer outstanding equipment. When considering bodies I think it is useful to look at the lens systems associated with the brand and see which one suits your style and types of shooting better. DSLR range from \$599 up to \$8000 in price. Factors in the price include Mega Pixels (MP), build quality, Auto-Focusing (AF) speed and accuracy, sensor size, and digital processing chips. There are many more factors, but these are some of the big ones that people look at immediately. Let's look at a couple of these a bit more closely.

**Mega Pixels-** Currently DSLR cameras range from 6 MP to 16 MP. The number of MP doesn't affect image quality as much as it affects the image size that can be printed. If you are printing nothing but 4 X 6 all day, then a 6 MP body is fine. When you start printing much larger sizes and posters the extra MP come in handy. The trade off is that if you shoot in RAW the files are very large. The difference between RAW and JPEG shooting will be dealt with in the next article of the series.

**Build Quality-** Bottom line is as in most things in life, you get what you pay for. Cameras are the same. Some of the more inexpensive bodies feel slightly plastic and not real solid. Pay a little more and you have a camera that feels much more stout in your hands.

**Auto-Focusing-** The higher end cameras have many more focus points and focus much quicker than the entry-level models, though these also do an excellent job. Plus focusing isn't all about the body, a large portion of that is a factor of the lens you use as well.

**Sensor size-** Currently DSLR use sensors that range from full frame to crop factors of 1.6. What does this mean? Full frame is like a traditional 35 mm camera. Full frame in DSLR equals expensive. This is reserved for your professional level models. The lower priced bodies use smaller sensors and this introduces a crop factor. This changes the field of view a bit. The crop factor comes from the fact that

the sensor in a digital camera is smaller than a frame of 35mm film. This means the digital SLR crops out the center portion of a given lenses field of view, but the image is still at the full resolution of the digital sensor. This crop factor gives a lens on a digital SLR a smaller field of view than it would have on a film SLR, giving it the same field of view of a longer lens when compared to a film SLR. Let's say you have a body with a crop factor of 1.6. That means a 50 mm lens would give you the same view as a 80mm lens. A 300 mm lens would look like a 480. When using telephoto lens it isn't that big of an issue. It really becomes a problem when using wide-angle lenses. With the crop factor it is really hard to get a true ultra wide-angle picture. It all references on how the image fills up the frame. This image will hopefully help a little bit.

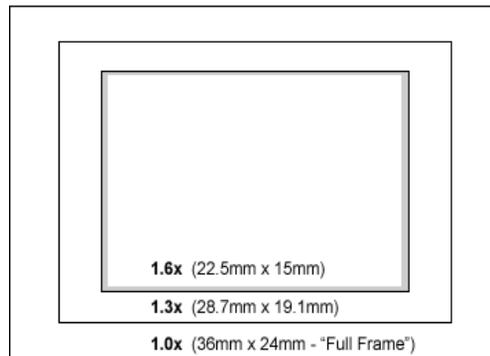
Some of the other features can differ somewhat. They all have LCD panels on the back for reviewing images and other important information. They display your menu options, histograms, shutter speed, aperture, ISO, etc. Most but not all have a built in wink flash, which are pretty much useless in my opinion. You have options for exposure compensation, flash compensation, AF mode, metering mode, white balance, parameters for jpeg processing, custom functions etc. I could write about each one individually, but it would be very long and will treat these as spe-

cial topics after the series is over.

Now to the fun part, the lens. Lenses can be very personal. Some people swear by zooms, and others shoot only primes. We will discuss some various terms and pros and cons of various lenses. Each brand of camera has there own lens system. Let's break the lens down into categories and discuss them that way. Before that let me differentiate 3 types of lenses. Normal lenses are ones that have a focal length that sees like we see. Generally this is considered 35-50mm. Telephoto lens are ones where the focal length is above 50 mm. Wide-angle lens are those that are below 35-50 mm. In addition, prime lenses are a fixed focal length, while zooms cover a range of focal lengths.

**Wide Angle-** These are great lenses and are used often in landscape, urban, and interiors photography. Wide-angle lenses can be used to get in

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more subject, or to enable you to get closer to a subject and still include it. Anything below 24 mm is usually considered an ultra-wide angle lens.

**Normal-** These are lenses that have a natural perspective, i.e. your eye. As mentioned above this is generally in

the 35-50 mm range.

**Telephoto-** Longer than 50 mm and are used to get you much closer to the subject. Many peo-

ple like them because you can really fill a frame with these lenses. They are very popular with nature and sports photographers.

**Macro** - This is a specialized group of lenses that allow you to focus very closely to subjects and give you life like sizes of your subject. The biggest trade off with these lenses is they AF very slowly and is best used with manual focus. This can be a bit of a problem with our fish, because many move quickly and manually focusing is almost impossible.

We talked about aperture last article. Lower aperture means a bigger opening for light to reach the sensor. Of course you want the widest aperture you can get. Well there is a trade-off for low aperture and that is money. Low aperture requires more glass and higher precision. A single stop of aperture can add several hundred dollars to the cost of a lens. I like low apertures and use primes mostly because it is cheaper to get a low aperture in a prime versus a zoom lens. I could buy a 200mm 2.8 for \$500 or I could buy a 70-200mm 2.8 for \$1300. The zoom lens is not only more expensive it is much heavier as well. You really have to consider price vs. convenience. I will take a 50 1.8 and a 200 2.8 and use my feet as a zoom. Many lenses also come with image stabilization technology that can add several stops to your hand holding ability. Many of the newer ones also come with special coatings for DSLR's. The quality of the glass used in lenses plays a big part in the price of the gear as well. I like to really look at what I want to use a lens for before considering purchasing it. Take the Canon 70-200mm lens. You can buy the 2.8 version

for about \$1300. You can buy a 4.0 copy for about \$600. Now I would ask myself, what am I going to do with this lens. If I am going to shoot baseball with it than I can get away with the f4 because it will be used outside and normally on sunny days, so lighting isn't an issue. For those rare dull days I can always bump the ISO up some. If I am going to shoot boys HS basketball indoors I would opt for the 2.8 version because we all know the inside of those gyms are badly lit and we need all the help we can get. So the most important thing is to consider what you are going to shoot.

Speaking of light, sometimes we can use some extra. Flashes are a tremendous investment to make and can really change your photography when you learn how to use it properly. Some cameras come with a pop up flash, but these aren't very effective. They are infamous for producing red -eye and for taking pictures of fish the often reflect hard off the glass. Flashes that can be mounted off or on the camera have become much more reasonable in price and can make a huge difference in your picture taking. Once again, price is a factor and the higher end models are much more customizable and flexible. Getting use to taking photos with a flash head takes time and much experimentation. I will be discussing this topic in more detail in the next article that will talk about actually setting up and executing a photo session with your fish. I hope this article help expose you to some basics about DSLR cameras and lenses. Whole books have been written on these topics and my goal was just give you a brief "exposure" to them. See ya next month!!!

■ *Dave Hansen*



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