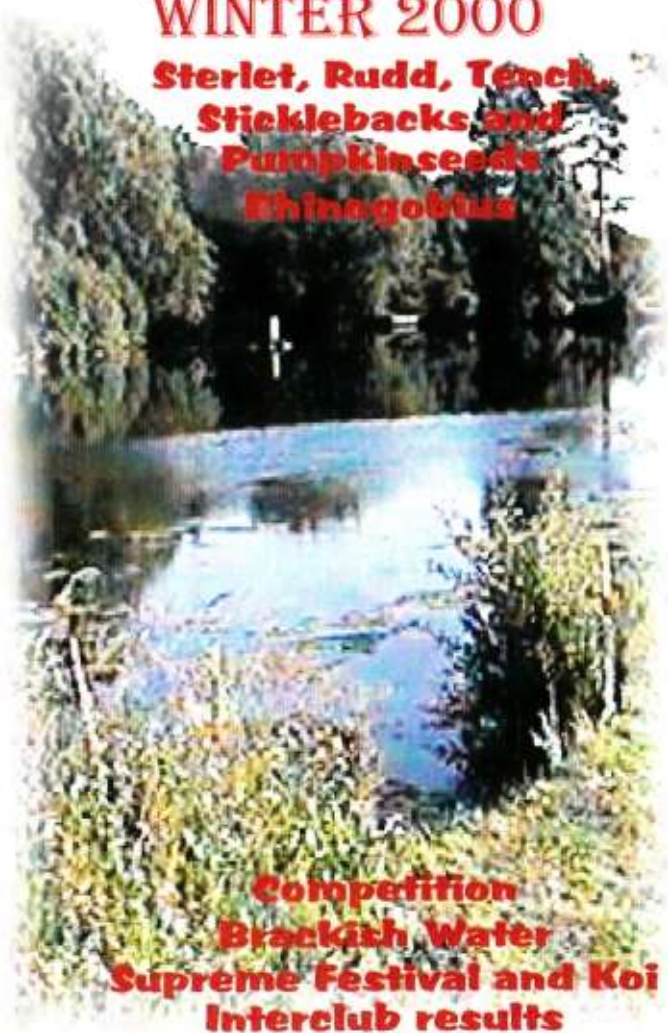


# MAGAZINE<sup>®</sup>

WINTER 2000

**Sterlet, Rudd, Tench,  
Sticklebacks and  
Pumpkinseeds  
Rhinegobius**



**Competition  
Brackish Water  
Supreme Festival and Koi  
Interclub results**

FISHWORLD

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**EDITORIAL**

Dear Readers,

Another packed issue for you all.

We have another year of innovation planned for 2001 - the 'proper' millennium!

The Spring 2001 issue will see a radical overhaul for 'Fishworld' starting with the name. The new name will not be finalised until next weekend so you will all just have to wait and see!

The new 'Fishworld' will include much more diverse articles and will better reflect the changes that have taken place in the hobby over recent years.

Have a super Christmas and New Year. See you all soon in a totally new guise.

Sue Crew,  
Editor



Contributions for this magazine should be posted to me by 25th January, 2001 at the address in the FBAS Year Book (2000) or Sue Crew c/o Abney Print & Design - address below.  
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**COVER PHOTO**

A private lake near Coventry

Courtesy  
Sue Crew

**BETTER BY DESIGN**  
by Les Holliday  
(Hagen)

When the Hagen Biolife internal filter originally appeared on the market it was heralded as the first fully integrated multistage internal filter to incorporate a complete wet and dry 'trickle' filter combined with superb mechanical and chemical pre-filtering.

*Hagen lead the field in aquarium filtration...*

This highly imaginative filter system was quickly welcomed, soon became the first choice for hobbyists requiring high levels of water quality and its popularity has lasted to the present day.

Hagen lead the field in aquarium filtration, not only because of the quality of their products, but also due to their policy of continual improvement. A rolling programme of development based upon studying the long-term usage of their filters, together with listening to hobbyist views on ways they can be improved, has certainly reaped rewards in other best selling products such as their Fluval Internal Filter range and the Biolife is the latest to benefit from this process.

The Fluval Biolife is a new addition to the popular Biolife Internal Filter range and follows the design of earlier models by separating filtration tasks into distinct areas to ensure high efficiency and superb overall water purity. Each filtering stage is, therefore, performed in a separate segregated area of the filter case. The first chamber has a large number of slots for water to enter and provision to install a heater if required. Water then flows from here into the pre-filtration chamber.

Within the pre-filter is an efficient mechanical filter pad which employs a double layer of foam to remove large, medium and many fine particulate waste particles from the water flow. The foam is reversible and has a large capture capacity. After most of the solids are removed, water then passes through a fine mesh polyester pad impregnated with carbon which removes remaining solid

*The new Fluval Biolife Filter provides maximum surface area and breeding sites for beneficial bacteria...*

particles and many dissolved impurities. Water is then directed onto a drip tray by way of a further mechanical strainer from which it drips into a 'wet and dry' chamber housing BioMax rings. BioMax media consists of inert ceramic rings which

**GREAT HAGEN COMPETITION TO WIN ONE OF THEIR NEW FLUVAL BIOLIFE FILTERS**

The new even more powerful Fluval Biolife is a fully integrated multistage filter system that contains the first complete internal 'trickle' filter with superb mechanical and chemical pre-filtering. As water flows through the Biolife, solids and dissolved impurities are first captured in the sponge/activated carbon pre-filter stage. The water then 'trickles' into the 'wet and dry' chamber where colonies of beneficial bacteria, which thrive on highly porous BioMax ceramic rings, effectively remove harmful toxins. The new Fluval Biolife Filter provides state-of-the-art powerful filtration that mechanically, chemically and biologically cleans the aquarium water.

For a chance to win this great prize all you have to do is complete the wordsearch competition on the next page. Hidden in the grid are ten words or phrases that describe features in the new Fluval Biolife Filter.

To help you we have listed all of the words below the grid and that's all the help we're going to give you. The words may read backwards, forwards, vertically, diagonally or horizontally and may overlap. Circle the words on the grid as you find them and when you have found all ten, fill in the form provided and send both to:

Rolf C. Hagen (UK) Ltd.,  
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Entries must be received before 1st January, 2001. All correct entries will be put into a bag and the sender of the first one drawn will win the Fluval Biolife Filter.

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**TEN FEATURES OF THE FLUVAL BIOLIFE FILTER**

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|---------------|--------------------|
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**FISHKEEPING  
A HOBBY OR AN  
OBSESSION**

**PART 2**  
by Larry Brown  
South Park Aquatic Study Society

Around the middle of 1972, I took on the duties of Groundsman at a place called Whitely Village, an old people's home in Surrey. Part of my wages was a three-bedroom house with a good sized garden and it was here that I started to keep fish again. First a 4 foot tank in the lounge - but you've guessed it - by 1975 there were tanks all over the house (we've all been there). Water changes were a major job taking up most of the weekends. I outgrew simple livebearers, such as the swordtails (Xiphophorus helleri HECKEL), the Platies (Xiphophorus maculatus GUNTHER), and the colourful little Guppies (Poecilia reticulata), and moved on to the harder to keep Cichlids such as the Angelfish (Pterophyllum cinctus), the Blue Acaras (Aequidens pulcher), the large Oscars or Marbled Cichlid (Astronotus ocellatus), plus the dwarf cichlids such as the Butterfly Ram (Apistogramma ramirezi), Kribensis (Pelvicochromis pulcher), as well as the Discus or Pompadourfish (Syphodon discus HECKEL). However, I only managed to breed the Acaras, which actually mate for life. My pair would spawn every few weeks and in the end I had to set them up in a tank of their own. At

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this time I also bred the Plecs (Hypostomus plecostomus HECKEL), which was more by chance than design!

It was about 1978 that I saw some fancy Goldfish at a local dealers and, as my wife and I both liked them so much, we decided to get some and keep them in a spare tank we had. I eventually faded out the tropicals and got rid of most of our tanks, keeping just two 4 foot in the lounge.

I was thinking of putting a pond in the garden, so we looked at lots of ponds and talked to loads of people who had ponds and all of them said that they should have built their ponds bigger. Bearing this in mind, I drew up some plans, and spade in hand I started.

We plumbed for a rectangular pond 14 foot by 8 foot by 2 foot deep - some 1400 gallons. The hole was dug out and the liner put in, and as we filled in with water we had some fun folding the corners so that the fish could not get caught in the folds. I then laid slabs around the edge of the pond and made good the lawn. The whole job took a week, working in the evenings and one weekend. The pond was sited in the middle of the garden as the year before I had built a patio at the back of the house. Now we could sit on the patio and watch the fish. Next we were off to the shops for plants, lilies, iris and rushes, etc. These were planted in trays and placed around the pond. Then we went to get some fish. The ones we kept in the house were fancy Goldfish and not really suitable for outside, so we got some hardier types. Five Bristol

Shubunkins, five ten tail Black Moors, five Red and White Comets and five Golden Orfe. These were floated in the pond to equalise the water temperature and then they were released. They all seemed very small at first, but I knew they would grow.

The next summer the fish all spawned. There was fry everywhere. We took some into the house (seem to remember doing this before) to rear in tanks and the rest were left in the pond. That same year I added to the pond a Tench (Tinca tinca) and five Common Goldfish (Carassius auratus). All fancy Goldfish are bred from the Common Goldfish. The Tench was never seen again spending all its time on the bottom. We had no problems with the pond or fish for some years until my father-in-law gave us some Koi (the Japanese word for Carp - Cyprinus carpio carpio), there were four in all.

My wife had once been to a fortune-teller and had been told that we would be given an exotic pet which would change our lives completely. I still wonder if these Koi were in fact the exotic pets the fortune-teller spoke of as they have indeed changed our lifestyle totally.

Well, we released the Koi into the pond and that was that. We did not see them again - so much for Koi.

In the spring of 1984 I emptied the pond to clean out the muck that collects at the bottom of a pond and to sort out the plants, etc. Nearly all the fish were there, with only a couple missing. The

Tench had put on some weight, so we took her to the local village pond and released her there where there was more room. We started to pump out the water, catching more fish as we went. When I was down to the last few inches - which was by then more mud than water - I got the first of the Koi, a bright yellow/gold fish, a Yamabuti Ogon. The next was a metallic silver/white fish called Purachina Ogon. Then came an old gold coloured fish with a dark overlay, called a Kujyaku Ogon and the last was a Hari wake Ogon a two-coloured fish, mainly white with yellow pattern. All were in perfect condition, and had grown to around eight inches or more. I was amazed!

We refilled the pond and put the plants back, and then the fish. We watched them swim about the pond until a few days later the water turned green. I changed the water again, but it soon turned green again. This was great for the fish, but no good for us to see them.

Back to my books. There must be some way around this green water problem. Filters? That's it!! Build a filter. Easy, no problem. I got a large loft tank and a pump, set up the tank by the fence, running a one inch pipe from the bottom of the tank, below the lawn and the bottom of the tank. Then I placed the pump in the deepest part of the pond. I had already put in a sump to help me when cleaning the pond. A half-inch pipe was then fitted to the pump and run to the loft tank. Here the water entered the tank through a spray bar, running down through the gravel and back to the pond. The spray bar was to aerate the water in the top of the tank.

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Simple! Switch it all on and Bingo! clear water in days. Joke! Ten days later still green water. Back to the drawing board. Try again, check this and that, test the water flow. Change this and alter that, more gravel, same outcome. GREEN WATER. Fish loved it!

Visiting a local dealer one weekend I picked up a leaflet for a coldwater fish show being held that day at Wimbledon so off we went. I was impressed. Lots of fancy Goldfish and Koi. We chatted with some of the club members (South Park Aquatic Study Society) who were putting on the show. I was told that their next meeting was on the following Tuesday night at 7.30 pm at the same venue and it was to be a talk on Koi by one of the club members. I decided to go along and listen to see what I could learn from them. The evening was a great success and I joined there and then. Over the next few weeks I was invited to many of the members homes to see their ponds and fish houses and with their help I overcame my green water problems by simply putting a sheet of foam into the filter. Gin clear water in days. At last we could see our fish.

My obsession with Koi was beginning!

I bought more Koi, and it was soon apparent that the pond was not really suitable for Koi. So plans were drawn up for Pond Mark Two, a purpose-built Koi pool which was larger, deeper and with bigger filters. It would have bottom drains, settlement and pre-filter chambers, with two main filter chambers, plus aeration at

all stages of filtration. Stand pipes in each chamber to flush water away to waste, two central heating pumps to run the water. One to pump water back to the pool via a ventura for aeration and circulation. The other pump ran the main filters, the water returning via flute aeration pipes.

Little did I know what I was letting myself into. What I was letting myself in for was two years' work on the building. Plus I was to be drawn into the show side of the fishkeeping hobby, later becoming the Assistant Show Secretary for four years (1985 - 1988) and my wife joining the committee in 1986.

My wife and I also joined the BKKS (British Koi Keepers Society) in 1984, to find that I was not the only one having an obsession with Koi.

Larry will continue with part three of his exploits in the Spring 2001 issue.

**Marine Fish Record**

The largest marine fish in the world is the rare plankton-feeding Whale Shark (Rhiniodon typus) which is found in the warmer waters of the Atlantic, Pacific and Indian Oceans. In 1919 a specimen measuring 60'9" and weighing 42.4 tons was found jammed in a bamboo stake trap at Koh Chik in the Gulf of Siam.

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aquarian

## DAVID FORD RETIRES by Dick Mills

Yes, it's official whether you believe it or not. After a long and eminent period of time as the creator and ultimate personal representative of AQUARIAN FISH FOODS, Dr. David Ford has (theoretically) said goodbye to the daily grind.

Around 200 invited guests gathered at The Post House Hotel at Brighouse in Yorkshire to celebrate both 25 years of Aquarian and to say thanks and farewell to David Ford.

As you entered the room set aside for the reception, you were at once overwhelmed with the pictorial information displayed on the walls. Whilst some shots justifiably depicted the creation of Aquarian Fish Foods right from the outset, the vast majority showed David Ford, along with hundreds of aquarists from all parts of the country, at fish shows, seminars, conventions and so on. This reunion by photographic proxy brought back many smiles and happy memories for the guests present.

Following a buffet supper, the 'formalities' began. Our 'MC' for the evening was Ron Hillenorts, a long-standing connection with the brand name, who introduced several people who had volunteered to 'say a few words'. From eminent business people on the distribution side, through to one of David's recent bosses Graham Butt, Ray 'Kingfisher' Lucas from the USA, editors of magazines to a representative of the aquarists present, each paid tribute to David's hard work and loyalty to the brand through the years, together with his willingness to support the Societies wherever he could. His 'leaving present' from the Company was a brand new Macintosh Computer whilst Dick Mills presented him with the THAS Golden Handshake' Brooch in recognition for his continuous support for aquarists everywhere. Everyone also included David's wife, Dorothy, in their tributes as she is seen just as much as David as he travels around public aquariums and Society meetings and Festivals alike.

David himself then treated everyone to a limited 'expose' to his life with Aquarian and did his best to hide his sadness at leaving, although there is a strong rumour that he is still connected in a Consultancy capacity. Following a period for 'Any Questions?' after his lecture (old habits obviously die hard), David mingled with the throng to accept even more accolades and presents - a talking Largetmouth Bass on a plaque was one such gift - before calling it a night.

A fair number of hobbyists were present - unfortunately the Port Talbot Open Show and the Hampton Court Flower Show precluded several from attending, all of whom had seen the development and growth of Aquarian in recent years and had had the privilege of learning about it from the researcher and creator himself. If ever there has been a 'one-man-product' then Aquarian must be it - the whole thing appears to be David Ford inspired through and through. A remarkable achievement of determination and tenacity through 25 years and more; David deserves a real rest, but can he allow himself to take it? Time will tell!!

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## Presentation to David Ford



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## THE BRACKISH WATER AQUARIUM by Les Pearce

What is brackish water?

It is surprising how many people believe that the term brackish means dirty. If you look it up in the dictionary, you will find that in truth, it means 'salty' or 'rather salt'. This is a fair description of what we know as brackish although, if you want to be pedantic about it, even fresh water contains salts.

We are mainly concerned with salts contained in sea water, primarily sodium chloride. As for the aquarium, we can take brackish water to mean that which is part way between fresh water and marine or sea water. To put a value on it, a specific gravity of around 1.005 is suitable with anything between 1.002 and 1.008 being quite acceptable.

The specific gravity is simply a measure of the density of water; the more salt added, the greater the density of the water. Pure distilled fresh water has a specific gravity of 1.000; sea water has a specific gravity of around 1.020 to 1.024 although this can vary around the world, with temperature and with the depth of water. To measure this value for your aquarium water you require an instrument called a hydrometer. These are readily available in most good aquatic retailers but one major problem exists: namely that

manufacturers seem to produce them almost exclusively for the marine fish keeper. Because of this, they are only calibrated for values much higher than those required for the average brackish water aquarium - usually around 1.018 to 1.030. A good alternative is a plastic hydrometer of the kind used by home brewers. These are quite cheap and you can easily obtain one from any shop that sells home-brewing equipment. They are ideal, being designed to measure in the required range.

Without doubt, the best type of salt to use in an aquarium is a good proprietary brand of synthetic sea salt, obtainable from most aquatic retailers. A cheaper but a far poorer substitute is ordinary cooking salt and, cheapest of all if you happen to live near the sea, is sea water diluted down with fresh water. You should be aware that this latter option carries certain risks and that you can easily transmit disease and pollution to your tank. This is not an option that I have ever employed, nor would I personally recommend it - and I live right by the sea! Under no circumstances should you use iodised table salt as this can be very detrimental to fish. The quantity of salt added is very much dependent upon personal preference - what works best for the individual aquarist and on the species of fish he or she intends to accommodate. I have known people who are adamant that one teaspoon of salt per gallon is quite adequate while others have successfully used up to three tablespoons per gallon. Generally, anything that produces a specific gravity within the previously defined parameters should produce favourable results. It has

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been suggested that when you carry out water changes, it could be beneficial to the fish to vary the salt content slightly with each change. In nature, this fluctuation will occur with the seasons. At times of heavy rainfall, increased quantities of fresh water flowing into estuaries from swollen rivers will dilute the salt content of the water; conversely, hot weather and drought will cause the salt levels to become more concentrated due both to a decrease in fresh water in the rivers and from evaporation.

By far the most common occurrences of brackish water in nature are the estuarine areas where fresh water rivers meet the sea. Most of the fish that we frequently keep in brackish aquaria are either from these areas or adapted to migrate from the sea into the rivers and vice versa. The most commonly known example of the latter is probably the salmon, although this fish is not usually kept in aquaria. This fish is born in the relative safety of a river where it spends the first part of its life. As it grows, it migrates downstream to the sea where it will live and grow to adulthood. It will then return to the river to spawn and the whole cycle starts again. Because of this life cycle the salmon, and other species of similar behaviour, can readily adapt to a wide range of water conditions, including brackish.

Fish and plants have a tendency to adjust their internal salt levels to those of the surrounding water. Water molecules are small enough to pass through the membrane of cell walls; larger salt molecules are not. This passing of molecules through a membrane is called osmosis. The only way, therefore, for a freshwater fish or plant to maintain body salt levels when placed in brackish or salt

water is to expel water, it cannot take on salt. It may sound strange but by expelling body fluid in this way the fish, or plant, can become dehydrated and die.

Because they inhabit tidal or estuarine waters, most fishes commonly kept in brackish conditions prefer a certain degree of water movement. The high volume of water turned over using power filtration can, therefore, be most beneficial. In order to help maintain hard, alkaline water a substrate containing calcium such as coral sand or gravel, crushed cockle shell or Calcium Plus is advisable. If you wish, you can mix this with ordinary gravel or use it on its own as an alternative to gravel. Because of the flow over the gravel, a sub-gravel filter will obviously improve the effect of this substrate on the water chemistry.

The problem of dehydration caused by osmosis means that the variety of plants that can adapt to brackish water conditions is somewhat limited. Generally, plants with tough, waxy leaves such as Java fern, valis and sagittaria do best. Other factors in some brackish water aquaria can also be detrimental to the cultivation of healthy plants. As mentioned earlier, most brackish water species prefer water movement ... typically, however, plants do not. Many brackish water fish species commonly kept in aquaria are, to a greater or lesser degree, herbivorous and can do untold damage to a well-planted tank. The spotted scat, *Scatophagus argus*, for example, is an avid eater of plants. This species can grow to ten inches or twenty-five centimetres long under the right conditions and is a very deep-bodied fish. Imagine what such a herbivore could do to your plants.

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The range of fish available to the brackish water enthusiast is wide and varied. Probably the most commonly seen of these are the mollies, *Poecilia sphenops*, *Poecilia latipinna* and *Poecilia velifera*. Incidentally, they derive their common name from their old scientific genus name, *Mollinia*. This has now been changed to *Poecilia* but its use for the common name has remained. These livebearers are usually cheap to buy and they are easy to keep, adaptable as they are to a wide range of conditions. They are fairly easy to breed... the female gives birth to relatively large, well-formed live young. They are selectively bred in a wide range of colours and forms, making them a bright and attractive choice for your aquarium. Mollies make an ideal introduction to the keeping of brackish water species.

Many families of fish that we are familiar with in the freshwater aquarium have representatives who have adapted to brackish water conditions. The cichlid family, for instance, is represented by at least two species of the same genus, *Etroplus suratensis*, the green chromide, and the smaller and more commonly seen *Etroplus maculatus* or orange chromide. The main representatives of the catfishes are the *Arius* species or shark catfish. This is a family of relatively large species, some growing up to 500 millimetres or half a metre in length which, in 'old money', is getting on for twenty inches.

A myriad of different goby species is available for the brackish water tank. Most commonly seen of these are

probably the knight goby, *Stigmatogobius sadanundia*, and the bumblebee gobies, *Brachyogobius doriae*, *Brachyogobius nanus* and *Brachyogobius xanthozona*. All these gobies are very attractively coloured and are a delight to view, scurrying around the aquarium with their jerky movements. The bumblebee gobies, as their common name would suggest, are black and yellow striped, while the knight goby has a base colour of grey covered with very bright and attractive mid-blue spots.

Some species of puffer fish and some rainbow fish are well-suited to the brackish water aquarium. There is the seat, sometimes known as the argus fish, *Scatophagus argus*, the monos, *Monodactylus argenteus* and the larger, deeper bodied and less commonly seen *Monodactylus sebae*. The movement of monos around the tank seems to indicate a constant struggle for supremacy between nervousness and grace. There are the archer fish, *Toxotes* species, so named for their ability to spit a powerful jet of water at insects paused in a false sense of security on plants overhanging the water surface. The startled insect is thus knocked into the water and becomes a meal for the hidden marksman. What a marvel it is that this fish is able to calculate and allow for the refraction of the light through the water in a split second and almost unerringly find its target.

The number of different species that you can keep in brackish conditions is considerable; there are far too many to

#### Care

Due to its potentially large size and rapid growth rate, the Grass Carp is probably best kept as an individual or as a small group in the average sized pond, which will allow enough room for other pond fish species to be kept.

This is a relatively hardy species of fish which should do well in the pond all year around providing that the depth of water allows stratification to occur in the wintertime.

It is a relatively long-lived fish which will mix well with all other species regularly kept and due to its longevity *Ctenopharyngodon idella* can become very tame in the garden pond, often learning to feed from the hand.

#### Feeding

Juvenile Grass Carp tend to have a mixed diet of zooplankton and plant material but once in excess of 10cm in length the Grass Carp tends to be totally herbivorous, although it is thought that zooplankton, etc., does still make up a small proportion of its diet.

Although often bought as an algae eating machine, unfortunately those relying on the grass carp for just this purpose may be disappointed with its limited effectiveness.

Although it will eat some species of filamentous algae such as *Enteromorpha* and *Cladophora*, such species as *Vaucheria* and *Spirogyra* are not touched unless other foodstuffs are in limited supply.

In general the Grass Carp tends to feed on soft leaved plants such as Duckweeds, Stoneworts, Pondweeds and Starworts. However tougher leaved plants including many regularly used marginals and lilies are rarely touched.

For effective algae control several large

fish would be required which would severely limit the stocking rate of other fish so the combined use of Grass Carp and other chemical/vegetable filtration method would yield the best results. It has also been discovered that effective grazing behaviour of algae will only occur at water temperatures of 16°C and above.

Many ponds do not contain sufficient food on which the Grass Carp can survive and it is best to supplement the natural production of a pond with a diet such as floating foodsticks. Those containing Wheatgerm or Spirulina also have a high vegetable content ensuring that the fish get a well balanced diet. Feeding little and often, as much as the fish will take in a couple of minutes, several times a day is important for these fish which graze all day in their natural environment. Using this method also ensures that water quality is not disturbed as the Grass Carp does tend to be a messy feeder.

#### Breeding

Although Grass Carp have been bred in hatcheries using complex methods which involve day length alteration, hormone injection, etc., there have been no written reports of Grass Carp actually breeding in

the garden pond. The chances of the Grass Carp actually breeding in the pond is unlikely as they prefer running water and absolutely ideal water conditions before they will spawn.

Many people obtain Grass Carp for their supposed ability to remove troublesome algae from the pond then blame the fish for the fact that the algae grows too fast for the poor grass carp to eat. Take my advice, however, the Grass Carp is a beautiful and unusual fish to have in the pond, enjoy it for what it is and not for what it does and you will not be disappointed.

mention in detail here. Generally, the shopkeeper can probably advise you on which species are brackish, which are not and, as with fresh water and marine fish, knowing the water conditions to which the fish are acclimatised in his or her tank is important. Another good source of information is, of course, reference books. These will tell you the preferred conditions of the particular species featured. One word of warning, I have seen mentioned in some publications the words 'will tolerate' salt or brackish conditions. I assume the term 'will tolerate' to mean that these are not necessarily the fish's favoured conditions but the fish can be forced to adapt to them. This can neither be right nor fair to the fish and is totally unnecessary since there are many true brackish water species readily available to choose from.

The keeping of various brackish water fishes is sometimes ignored or pushed to one side as 'something to have a go at one day'. Yet in reality, it can be a fascinating branch of our hobby and well worth consideration for the 'here and now'. The care and maintenance of brackish water fish are no more difficult or complicated than the tropical freshwater fishes that most aquarists keep, and the wide diversity of unusual and interesting species available makes it well worthwhile and rewarding.

## THE GRASS CARP

by Roger Foggitt, Tetra

The Grass Carp (*Ctenopharyngodon idella*) is a rarity in many ponds but is probably best known for its aquatic weed and algae controlling abilities. This fish, however, is much more than just a "biological hoover" for such pond pests, but is in itself a very beautiful fish.

#### Origins

The Grass carp is not a native fish of Britain but of the large rivers of East Asia where its distribution stretches from as far north as the River Amur in Siberia to South China. One of its common names is the "White Amur" which gives a clue to where it is found in greatest numbers! The introduction of this fish into Europe occurred in the 1950's when its abilities to help keep aquatic weed growth in check were discovered. This was of particular interest to fish farmers and fishery managers where excessive growth of aquatic weeds is a common problem. Not surprisingly the news of the Grass Carp's ability to control filamentous "Blanket Weed" algae soon filtered into the ornamental pond keeping fraternity and although rare is now an often sought-after fish for the garden pond.

#### Size, Shape and Colour

The Grass Carp is a member of the cyprinid family of fish and like most of its closely related cousins can grow to a very large size. The body shape tends, however, to be much sleeker than that of the Koi or Common Carp, with its muscular form designed to allow it to swim and accelerate extremely quickly.

The upper half of the body tends to be a silvery green in colour with a lighter belly although there are albino forms available.

The head of the grass carp has a very distinct shape which in larger fish almost looks disproportionately small compared with the rest of the fish. Unlike Koi and Common Carp the mouth possesses no barbels and is designed specifically for tearing at vegetation.

The Grass Carp in the wild has been known to reach a maximum length of 1.25m (4 feet) in length and weigh in at a massive 35kg (77lb). A more likely maximum size in a pond, however, is about one fifth of this size and weight.

## THE PUMPKINSEED SUNFISH

by Roger Foggitt

There are many tropical fish normally kept in aquariums which can, with some care, be kept in the pond during warmer weather or in areas of the country which do not suffer too inclement a winter. The list includes many popular species such as Guppies, Mollies and Killifish.

However, many of these are very small and only do well in the smallest of ponds but there is an alternative which is larger, more hardy and definitely a colourful occupant of the pond - The Pumpkinseed Sunfish, *Lepomis gibbosus*.

#### Origins

The Pumpkinseed belongs to the Centrarchidae family of fish whose close relatives are the black banded sunfish and the blue spotted sunfish.

It is a native of the Atlantic Coast region of the USA and its boundaries stretch from New England to the Great Lake as far south as Florida.

#### Size and Colour

It is the vivid colours of the Pumpkinseed which appeals to many fish keepers who look on it as an attractive addition to the pond.

The underlying colour of the fish is a grey green but its appeal comes from the vivid blue-green markings on its sides and the presence of a flash of red just behind the operculum or gill cover.

In general the males are brighter in colour whereas the female tends to have

a much deeper, fuller body shape. Growing to a maximum of 24cm (10") in size also means that the sunfish is unlikely to outgrow most small or medium sized ponds.

#### Care

*Lepomis gibbosus* is generally a very hardy fish and resistant to parasites. It is tolerant of a wide range of pH and water hardness and does best in water between 12 and 25°C (54-77°F).

Although it will overwinter in deep UK ponds, in areas which do not have too hard a winter it is probably best to bring this fish inside to the aquarium from early winter to early spring.

Many fishkeepers feel that the Pumpkinseed Sunfish is an aggressive, unsociable animal, however, in ponds where there is a large volume of water and plenty of space then the fish is actually quite peaceful. That said, the Pumpkinseed can be a very active predator and will eat smaller fish than itself so is best kept in the pond with fish of similar or larger size.

During breeding time the fish may become very territorial and aggressive towards others in the pond so care should be taken not to overstock with these fish. One male should be kept for every 1m<sup>2</sup> of water surface.

Due to the fishes breeding behaviour it does best in the pond if there is an area of fine substrate. This can be created using a shallow planting tray filled with lime free silver sand or fine gravel in those ponds which are kept with clear bottoms.

The pond should also be well planted to

give plenty of cover for females during breeding time.

As with all pond fish today, the Pumpkinseed Sunfish is intolerant of poor water conditions and water pollution so this should be monitored regularly using a proprietary test kit.

#### Feeding

The Pumpkinseed requires a relatively high protein diet so any high protein floating pond stick or better still a cichlid floating foodstick such as Tetra DoroMin will suffice.

The diet can also be enhanced using livefoods such as river shrimp and worms but these should be given only as a treat food.

#### Breeding

Breeding of the Pumpkinseed in UK ponds has yet to be recorded however these fish have been bred in captivity in aquaria.

The breeding behaviour of these fish makes interesting reading. The male Pumpkinseed uses his tail to excavate a shallow hollow in the substrate (hence

the need for substrate in the pond) and then entices the female to the "nest" by performing a complex courtship dance.

Once the pair has been formed the female will lay up to one thousand eggs in the middle of the hollow after which time the male becomes extremely aggressive towards her chasing her away from the nest site. The male will then guard the eggs and the fry until they are free swimming after which time the parental care ends.

The Pumpkinseed Sunfish may be thought of as a bit of an oddball fish to have in a UK pond. However many ponds do lack that "tropical" touch which many pond keepers like during the summertime, either from surrounding marginal plants, plants in the garden or better still as a fish in the pond! With a bit of effort, and given somewhere warm to spend the winter these fish can be enjoyed all the year around. After all, in the winter we spend most of our time indoors and during the summertime, outdoors so what better than a colourful fish to brighten up our surroundings wherever we are!



## THE RUDD

by Roger Foggitt

The Rudd, being one of the more peaceful of the still-water "coarse" fish, is an ideal addition to the garden pond. Its quiet nature makes it extremely compatible with more sensitive fish such as Orfe and its hardy constitution enables it to be kept by the experienced and novice fishkeeper alike.

#### Origins

A member of the Carp (cyprinid) family of fish the Rudd, *Scardinius erythrophthalmus*, is a mid-European and Asian fish found as far north as Holland and southern areas of Scandinavia and as far south as the northern Mediterranean.

#### Size and Shape

The Rudd is often confused with another coarse fish, the Roach. However, this species tends to have a much more robust, "stocky" shape with a deeper body and characteristic sharp "keel" and distinct 40-43 scale lateral line.

It will grow as large as such fish as the Orfe with adults in the wild reaching a maximum length of 16 inches (40cm). However, in the pond, the maximum size of the Rudd is likely to be slightly less than this at 10 inches (25cm). As with many coarse fish, if kept in an overstocked pond, the Rudd is prone to "stunting", reducing its potential size so, therefore, it is best not to keep these fish in high density fish populations.

#### Colour

The main characteristic of the wild form of the Rudd is its startling blood-red fins which is often all you see of this fish at

feeding time, as it darts to the surface and then heads back to deeper areas of the pond. Due to the efforts of sport fisheries, captive breeding programmes have led to the appearance of more colourful forms of the Rudd which are more popular than the plain silver coloured wild fish. The most popular of these varieties are the Golden and Red forms which have more appeal as ornamental pond fish. The Golden and Red Rudd also tend to have more deeply coloured yellow/orange eyes.

#### Care

The Rudd is a shoaling fish in the wild and should be kept as a minimum of a group of four to satisfy this behavioural need. As with all pond fish, water quality should be kept as good as possible with zero levels of ammonia and nitrate. However, as the Rudd tends to be a still water fish, it can withstand lower oxygen levels than some of the more sensitive species of pond fish such as koi and orfe so it is ideal for the pond with little or no filtration system, as long as water quality is good.

There should be no problem keeping the Rudd in the pond all year round and, as long as the pond is a minimum of two and a half feet deep, overwintering outside should be no problem.

#### Feeding

The Rudd is a primarily vegetarian fish feeding from fine-leaved aquatic plants which has led to it gaining a reputation of being unsuitable for the planted pond. Experience has shown, however, that it is not as much of a pond wrecker as once thought. The majority of pond plants and lilies are perfectly safe and will not be

touched, however, the very fine or soft-leaved submerged specimens such as Myriophyllum (Parrot's Feather) may be eaten.

The upturned mouth of the Rudd shows that it is primarily a surface feeder but, due to the herbivorous nature of its diet, it is recommended that Wheatgerm or Spirulina based pond sticks are given throughout the year to satisfy its specific nutritional requirements.

It is a relatively timid fish and most of the time all that is seen is a silver and red flash as food is snatched from the surface. Its timid nature remains throughout its life but it is often seen hanging just below the surface once it has become accustomed to its environment.

#### Breeding

The Rudd is unlikely to breed in smaller ponds, however it may do so in larger ponds in excess of 2000 gallons.

Spawning tends to take place from April to June with males developing characteristic lumps or breeding "tubercles" on the head as they come into condition and as with all cyprinid fish spawning behaviour, is characterised by the males chasing females around the pond

in a flurry of activity.

Each female produces on average 100,000 or more eggs which are deposited on fine-leaved plants or a suitable substrate. These take approximately 5-7 days to hatch after which time the fry will feed on the naturally occurring zooplankton in the pond and can be given additional specialised fry foods to increase their growth and survival rates.

As with many of the more unusual pond fish, *Scardinius erythrophthalmus*, has a temperament and nature all of its own, not to mention an unpronounceable name, and whilst not the most gregarious fish in the pond it

does add that extra special interest lacking in ponds which contain only the more common species of ornamental fish.



## STERLET

by Roger Foggitt

Roger Foggitt of Tetra's Information Centre looks at one of the more unusual species of fish that can be kept in a pond.

Many pondkeepers around the country often feel quite limited to the species of fish that can be kept in their outdoor ponds, particularly with the great British weather causing such large changes in water temperature throughout the year. Hardy species such as goldfish, bitterling, orfe and koi, to name a few examples, are the usual choices. Given a little more attention and a retreat from the cold winter weather, other fish can also be kept throughout the spring, summer and autumn such as one of the oldest species and most unusual looking of pond inhabitants - The Sterlet.

#### Prehistoric Origins

The Sterlet, *Acipenser ruthenus*, belongs to the Sturgeon family, more well known for their Caviar production than for their ability to be kept as a pond fish.

The Sturgeon family belongs to a very primitive order of fish, the Chondrostei of which there are only 25 species left. These "living dinosaurs" have been succeeded by the modern bony fish, the teleosts, and have characteristics not seen in any other group of fish.

Primarily from European, Baltic and Siberian freshwaters these fish have been farmed for their caviar for many years and given the correct conditions are relatively easy to keep in aquarium or pond alike.

The first and most noticeable feature of this species is the long extended but flattened snout and underslung mouth possessing two pairs of "whiskery" barbels and the rows of angular bony plates which run along the body, giving it an "armour plated" appearance. The other primitive features which separate the Sterlet from most other bony fish are the large heterocercal tail (both upper and lower halves are different sizes) and the presence of a continuous spiracle or "hole" which allows water to be drawn across the gills even if the mouth is lying flat on the bottom when the fish is at rest. The presence of this type of spiracle is also found in another group of primitive fish, the sharks and rays.

#### Size

The majority of Sterlets kept are juveniles of about six to twelve inches long (15 - 30 cm) but the adults of this species can reach anything up to three feet (1m) long and have been known to reach the grand old age of 80 years, although the record for one fish is 145 years old! A third of this is more likely to be the lifespan for individuals kept in captivity.

Fortunately for the pondkeeper, their rate of growth is relatively slow so the fish will not outgrow the pond too rapidly.

#### Care

To appreciate the graceful, "gliding" swimming action of the Sterlet, the most important thing to supply is plenty of space with few long thin weedy plants or obstructions. In this respect the Sterlet is really only suitable for larger ponds, however, this is dependent on the overall length of the fish. As the Sterlet is also a

bottom feeder and spends some of its time at rest on the bottom of the pond, the substrate if there is any present should be smooth with no sharp stones which may damage the fishes soft underside. This fish is also known to stir up sediments and uproot plants in its search for food so ensure that any growing baskets are covered with a 1 inch layer of gravel to prevent soil and plants being disturbed.

As long as these parameters are met, the Sterlet is a relatively easy fish to keep. They require clean, unpolluted water with a pH of 7.0 - 8.0 and a general hardness of 15-20dH. The temperature of the water should be 10-18°C (50-65°F) and although this should not be too much of a problem in late spring and early summer, when winter arrives and pond temperatures begin to drop then they should be either moved inside where the water temperature is kept high or kept in a pond which is heated for the duration of the winter.

The peaceful nature of this fish means that it can be kept with most of the common pond fish although anything that is small enough to become a tasty morsel - probably will!

**Feeding**

The Sterlet tends to feed, for the majority of the time, from the bottom of the pond and will take many types of foods. Sinking ones are best although food will be taken from the surface. Higher protein foods are

recommended to satisfy the requirements of this essentially carnivorous fish. Additional livefoods such as earthworms, tubifex, river shrimp, snails and insect larvae can also be given to add variety to the diet.

**Breeding**

The breeding of Sterlets in captivity is very difficult and there has been little success other than those that farm the fish for their caviar.

The sexing of the fish is very difficult and the majority of the time females are identified either just before or during spawning which takes place in early summer (May - June). These fish only tend to spawn in running water which also makes things difficult for the pondkeeper. If spawning does take place, the females produce in the region of 11,000 to 135,000 eggs which are approximately 2-3 mm (1/8") in diameter and jet black in colour. The incubation period of the eggs is 4 to 5 days after which time the fry should be fed on a powdered high protein diet such as Tetra Baby Fish Food for Egglayers and as they grow can be weaned on to flake and then larger food types.

The Sterlet is probably one of the most unusual fish to keep in the pond and as long as the water quality is good and the temperature remains above 10°C then this "Dinosaur of the Deep" should provide many hours of fascinating viewing as it cruises around the bottom of the pond searching for food.



<b>FACTFILE - The Sterlet</b>	
Family:	Acipenseridae (The Sturgeons)
Scientific Name:	<i>Acipenser ruthenus</i>
Origins:	Eastern European waters, Baltic and Siberia
Lifespan:	Up to 80 years in wild, record is 145 years!
Size:	Up to 1m in wild usually 45-50 cm in captivity
Water Quality	Temperature is most important - keep above 10°C pH 7.0-8.0 Hardness 15-20dH



**A HARD ACT TO SWALLOW**  
by Roger Foggitt

Roger Foggitt of Tetra's Information Centre looks at one of the smaller fish species that can be kept in the garden pond. As long as you are not dressed in red you should find them the most pleasant and interesting of fish to keep.

Ask any child or even adult, which fish they first remember seeing in or catching from the local stream or pond and I bet that most will say the Stickleback (*Gasterosteus aculeatus*).

Many a young (or even old!) child will have come proudly home from his fishing expedition with wellingtons full of water

and a jam jar containing one or more of these fascinating fish. Hopefully not many will have come home with two males in the same jar, because although these fish may be small, when the males are in breeding condition they are extremely aggressive towards one another.

**Origins**

The Stickleback is one of the few truly native European fish that can be kept in the pond.

It belongs to the family Gasterosteidae which live predominantly in fresh and brackish waters in Northern temperate waters. The most common of the stickleback family is the subject of this article, the 3-spined stickleback. Its other



SUPREME CHAMPION - CHAS RAGGIO



SECOND PLACE - TONY TYSON

**SUPREME CHAMPIONSHIP  
WINNERS -  
BRACKLESHAM  
BAY 2000**



THIRD PLACE - JOHN POWELL



FOURTH PLACE - PAUL WHIDDETT

common relatives are the Ten-Spined Stickleback and the brackish water, Fifteen-Spined Stickleback.

It is the male of the stickleback family who both builds and protects the breeding nest. The female simply lays her eggs and leaves.

#### Size and Colour

The three-spined stickleback grows to a maximum of 12cm (4.5 inches) in length which makes them ideal inhabitants for even the smallest ponds which will live peacefully with all other species.

It gets its name from the three spines which make up the dorsal fin which are used for both display and defence. They can be raised and locked in an upright position if the fish is taken by a predator, making them uncomfortable to swallow which often leads to them being regurgitated still alive!

During the majority of the year the stickleback is a shoaling species and both males and females tend to be a silvery-green in colour with the males having a more slender body and generally being more active.

However, during spring and early summer the males go through a startling colour change, displaying a bright red belly and electric blue sides and back. During this time the males become extremely territorial and aggressive towards other males of the same species, and if kept in too small a pond, will often fight with disastrous consequences. It is best, therefore, to keep perhaps a maximum of two males in a pond with four or five females per male, to avoid fighting breaking out over territories or mates.

#### Care and Feeding

As with all pond fish special attention should be made to water quality. The stickleback is used to living in clean fresh water within streams and ponds. It is not as hardy as species such as the Common Goldfish, so any decrease in water quality should be avoided.

The males build their nests from fine-leaved plants and filamentous algae so the addition of oxygenators such as Parrots Feather and Elodea spp. to the pond is beneficial.

The Three Spined Stickleback is also prone to whitespot so a careful eye should be kept on these fish particularly during early spring and late autumn and if disease problems do occur the fish should be treated with a general pond treatment such as TetraPond MediFin.

Initially, the stickleback when caught fresh from the wild, may be choosy over its diet, often not accepting dried foods such as flake. Using livefood such as daphnia, mixed with either dried, frozen or flake food during the first few weeks of introduction will eventually wean them onto using foods such as TetraPond Flake.

#### Breeding

This is the most fascinating aspect of keeping the stickleback in the pond. As water temperatures begin to rise in early spring not only do the males undergo a startling colour change but they also undergo a remarkable behaviour change.

What were once part of a peaceful shoal of fish, the males becomes highly aggressive and territorial individuals with a tendency to display their aggressiveness to anything red, the colour displayed by

all other males at this time of year.

This behaviour was first recorded by the Dutch behavioural zoologist Tinbergen who noticed that his sticklebacks, which he kept in small aquaria, would become extremely agitated and aggressive whenever anything red came close to the front of the tank, often hurtling themselves against the glass with open mouths and raised spines.

This fascinated Tinbergen who, in a series of experiments, observed that the sticklebacks would attack cigar-shaped dummies which were painted red on their underside with an eye spot on the side. The sticklebacks showed far more aggression to these un-fish-like dummies than to a model of a real stickleback male without a red belly!

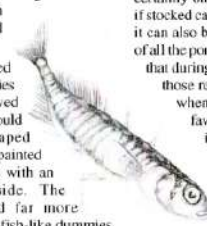
Although the males show aggressiveness towards others, they will only do so if they are within their own territory. If removed from their territory and placed in another their initial response to another male is to attempt to return to their own.

Once the male has undergone its colour change and has established a territory, he will construct a tunnel-like nest from gravel and plant material. He then attracts prospective females to the nest with an elaborate zig zag dance. Once a female has laid her eggs in the nest, normally 20 to 50 in number, she will then leave and the male will fertilize them taking on the role of protecting the nest and eggs up to the time that they hatch.

The eggs usually hatch within 3 to 4 days. The fry are approximately 2-3mm in length and will initially feed on microscopic

rotifers and other plankton in the water. When they become larger they should be fed fine powdered foods such as Tetra Baby Fish Food for Egglayers and can be weaned on to flake foods as they grow.

The stickleback, although one of the smallest inhabitants of the pond, is certainly one of the most aggressive but, if stocked carefully and cared for correctly, it can also be one of the most fascinating of all the pond fish species. Just remember that during the spring and early summer those red shorts you look so good in when mowing the lawn are not the favourites of one particular small individual!



#### Stickleback FactFile

**FAMILY:** Gasterosteidae  
**LATIN NAME:** *Gasterosteus aculeatus*  
**ORIGINS:** Predominantly from European temperate waters  
**SIZE:** Max of 12cm (4.5")  
**WATER QUALITY:** Ammonia: 0 mg/l Nitrite: 0 mg/l Nitrate: 50 mg/l (MAX) pH: 7-7.8 Temp: 5-20°C (42-70°F) A coldwater species  
**STOCKING:** Ratio of 1 male per 4 females. No more than 2 males in smaller ponds.  
**FEEDING:** Livefoods such as Daphnia or high quality flake foods such as TetraPond flake.  
**BREEDING:** Provide fine-leaved plants for nest building. Feed fry on powdered foods such as Tetra Baby Fish Food for Egglayers and wean on to a diet of flake.

## THE FIRST AID FISH - THE TENCH (*Tinca tinca*)

by Roger Foggitt

Once considered as a very bland fish for the pond, due to its dull colouring and shyness, selective breeding has now produced many colour varieties of the tench which makes an interesting addition to any pond.

#### Origins

The tench is primarily a European fish once found in its greatest numbers in rivers and lakes in central England. But due to it being a popular sport fish for anglers it has now been introduced into many stretches of water in the UK.

Because of this fishes popularity as a sport fish, intensive rearing in fish farms has led to the appearance of different coloured variants of the same fish.

#### Size

The tench has been known to grow to a maximum size of approximately 2 feet, however for those kept in a pond a more likely maximum size would be 30-45 cm (11-1.5 feet).

The maximum recorded age of a tench is somewhere in the region of 10 years but sexual maturation occurs at the age of 3-4 years.

With small eyes and a single pair of barbels below the mouth, the tench is a deep-bodied fish, covered in tiny scales, embedded under a relatively deep layer of skin.

It is the mucus layer produced by its skin which has earned the tench the dubious title of "The Doctor Fish". It is claimed that the mucus coating produced by the

tench has miraculous healing properties and other fish with infections or damage are thought to "rub against" it to obtain some of the healing mucus for themselves. This claim is further enhanced by the fact that records show it was once also used to treat strains and bruising in humans! How true these claims are remains to be proved, in fact the mucus of many fish contains antibodies and anti-bacterial chemicals as part of their natural immune system.

#### Colour

Until very recently the only colour variant of the tench available was the plain green form which did not make these fish the most attractive additions to the pond because they were never seen! Its natural green colouration was so good a camouflage that many pondkeepers would often wonder if the fish were still in residence. The most common colour variant of the green tench is the golden tench which does make them much more acceptable as an "ornamental" species. There are now, through selective breeding many more colour variants available ranging from white to red to a mixture of red and white.

#### Care

The tench is a relatively shy fish so a well planted pond with plenty of cover is recommended. However, if acclimatised properly and introduced slowly into the water, given time to settle and once they become used to disturbance around the pond during feeding time for example, they will become braver and take food from the water's surface. Because of the potential size of these fish, the minimum sized pond that should be considered

when keeping the tench is 8 feet by 6 feet by 2 feet deep minimum.

More of the fish will be seen if they are kept as pairs, or even in a shoal of 3 or more individuals.

Although they are relatively hardy fish, water quality must be kept as good as possible. A relatively broad range of pH is acceptable to the fish with a pH of 7.5-8.0 being best.

Ammonia and Nitrite levels should be at a minimum (preferably zero) with the nitrate level of the water not exceeding 50mg/l (50 ppm).

#### Feeding

The tench in the wild is a bottom feeder and was once thought to be a good cleaner fish due to its scavenging behaviour, clearing debris from the bottom of the pond. However, the tench is no more a scavenger than species such as goldfish. Feeding on algae, plants, worms, insect larvae, snails and mussels, the throat of the fish contains strong bony plates known as Pharyngeal Teeth which are used to crush the hard shells of its prey.

Most sinking pond foods will be taken by the tench, however, as stated previously once it has become used to its new environment, it will take floating foodsticks from the surface of the water.

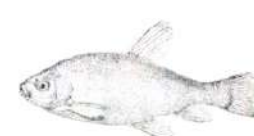
#### Breeding

In order to breed, the Tench requires a prolonged period of high temperatures (above 18°C). For that reason, in the UK, breeding under natural conditions normally takes place once every 3-4 years.

The male and female tench are relatively easy to identify due to differences in their pelvic fins. The male's fins tend to be large and paddle-like with the female's being smaller and less distinctive in shape. When in breeding condition, white breeding tubercles may also be apparent on the leading edges of the male fishes' fins.

As with many pond fish, the tench is an egg depositor laying eggs on the leaves of fine-leaved plants.

Due to the new colour varieties of tench now available, the "Doctor Fish" can now be considered as one of the true ornamental species. Given time and careful introduction to their new environment, they can give just as much pleasure as other more common pond fish.





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## SUPREME CHAMPIONSHIP 2000 - BRACKLESHAM BAY

EXHIBIT NAME	TANK NO.	TOTAL POINTS	REMARKS
L. rubropunctatus	1	81	290 not deporting
L. galanus	2	87	170 lovely fish!!
L. macrochirus	3	88	200 very nice
L. wycki	4	83	500 small but nice
C. nicaraguense	5	73	180 small not enough body
C. nicaraguense	6	80	180 down on colour
C. dewison	8	76	150 small
P. altum	9	71	100 small not deporting
Boi, Lohachata	10	82	130 quite nice
Hara-hara	11	91	80 beautiful fish!!
Periphetarius barbatus	12	74	150 small not deporting
S. googota	13	80	100 not deporting damage to RH barbel
H. bimaculata	14	77	60 down on colour, small
D. dangila	15	79	100 small
D. dangila	16	68	100 mouth damage
C. latreusis	19	78	80 small, down on body
L. macrochirus	20	87	290 nice, a bit thin
C. nigropinnatus	26	78	40 small, lacks colour
H. alireyi	27	80	50 nice
H. amurensis	28	75	25 small
R. albolineatus	29	80	55 nice
C. macrostigma	30	84	100 nice fish depicts well
H. metric	31	80	45 not deporting
H. victori	32	81	45 not deporting
B. cruz	33	82	60 nice, not deporting
B. oligolepis	34	80	45 nice not deporting
macrops??	35	75	90 small
C. infasciatus	36	78	60 poor condition
C. sodalis	37	86	65 very nice
C. sychri	38	80	50 down on body & colour
D. palustrana	39	79	70 not deporting
maie guppy	40	80	30 very nice guppy
maie guppy	42	74	30 small
A. borelli	44	79	50 slight damage to pectorals
N. marginatus	45	82	35 nice
C. bicolor	46	73	150 small
Swordtail	47	82	80 nice swordtail
Tiger Barb	48	72	65 small

N.B. Where tank numbers are omitted, this denotes exhibit withdrawn.

Thanks to all exhibitors for taking the trouble to bring your fish out and special thanks to Alan Stevens for acting as Judge.

## KOI INTERCLUB 2000 - BRACKLESHAM BAY

Best in Show	John Giddens	Size 4 Kohaku
Second Best in Show	George Loft	Size 3 Kohaku
Third Best in Show	Steve Watson	Size 4 Kohaku
Unique Koi Award	Rod Isted	Size 3 Kin Ki Utsuri

Best Worthing & District Vat	Steve Watson
Best South Hants Section Vat	John Giddens

1 <sup>st</sup> Size 4	John Giddens	Kohaku
2 <sup>nd</sup> Size 4	Steve Watson	Kohaku
3 <sup>rd</sup> Size 4	Steve Watson	Shiro Utsuri
1 <sup>st</sup> Size 3	George Loft	Kohaku
2 <sup>nd</sup> Size 3	John Giddens	Kohaku
3 <sup>rd</sup> Size 3	Steve Watson	Sanke
1 <sup>st</sup> Size 2	John Giddens	Gin Rin Shiro Utsuri
2 <sup>nd</sup> Size 2	George Loft	Kohaku
3 <sup>rd</sup> Size 2	John Giddens	Kohaku
1 <sup>st</sup> Size 1	John Giddens	Kohaku
2 <sup>nd</sup> Size 1	Rod & Gerry Isted	Kohaku
3 <sup>rd</sup> Size 1	Anthony Plummer	Tancho Sank

## JUDGES CORNER



Welcome to the December edition of the Judges Page. There are a number of changes we would like to bring to all the Judges' attention. After long consultation - mainly with the Federation of Northern Aquarium Societies (FNAS), the Federation of Scottish Aquarist Societies (FSAS) and the Association of Aquarists (A of A), we have signed an agreement to implement standard sizes to all fish listed within the FBAS Size Sheets. All Federations have also agreed to use specialist society's size guides and all size sheets will be updated yearly. As you can appreciate this is a major breakthrough and can only benefit the exhibitors who travel the length and breadth of this country showing fish. Now they will know that the size of their fish will not vary from one Federation to another. There are bound to be errors in the first year's size guides, but we will all be monitoring the guides and would appreciate it if you would contact me if you find any anomalies. This will mean that when sizes are discussed during the year, sizing problems can be 'ironed out' and changes made as necessary. A number of new fish will be introduced as well as a number of name changes. These will be published as a list and sent out with the size sheets in the New Year.

Because of the agreement between the Federations, we need to look at the way we send in size adjustments. With this in mind a new form for Senior Judges to complete has been produced, which is more in line with the information we now need. The form should be returned by the Senior Judge

after each show. We are also producing a size adjustment form for each Judge to fill in at the show for passing to the Senior Judge who will send both forms back to us. A stamped, addressed envelope will be supplied for this purpose.

It is with regret that we must say a fond farewell to one of our oldest Judges, who has decided to hang up his rule and retire from judging. We are all aware of Bill Rundle's commitment to the Federation and when he is not judging he is lecturing on his favourite subject - Water Lilies. Those of you who saw his lecture on Water Lilies at Bracklesham Bay this year will know his knowledge on the subject is vast and I also know he keeps a large number of varieties at home in Plymouth, so he is talking from experience. The slides he was showing were very good quality and as near professional standard as you can get. I am sure he gets as much pleasure from Water Lilies as he does from fish! The J & S Committee would like to wish him well and we would - with his permission - like to place him on our retired list of Judges so he can remain in touch with us all.

Now all judging engagements will have finished, remember that your workload forms need to be returned by the end of January 2001. If your workload forms are not returned your new size sheets will not be sent out. A new style workload form has been produced which will hopefully make this process easier to complete as they are tick box responses.

We would like to announce a Judges' Exchange Agreement with the Association of Aquarists (A of A) which is exactly the same as that in place with the Federation of Northern Aquarium Societies (FNAS). Full details of their Judges will be entered into the next edition of the FBAS Yearbook.

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would like to apologise to all supporters of its annual Open Show for any inconvenience caused by its cancellation due to the recent fuel crisis, which left many Judges and would-be exhibitors stranded.

Fortunately, our FBAS Championship Trophies were not wasted, but allocated to remaining shows in this year, and we are pleased to tell everyone that we have already booked the usual hall for the usual date - 15th September - for our 2001 Open Show.

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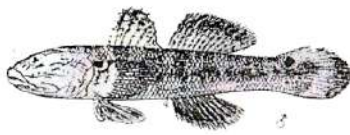
**RHINOGOBIUS OR WHIT TO WUI**  
by Bob Esson

In recent years several fishes bearing the genus name *Rhinogobius* have appeared on the show bench and are being exhibited in Class W, AOS Coldwater. Apart from a couple of photographs in Baensch and some written information in one or two books on Far Eastern fishes, little information was available concerning them. As a group, they not only present a problem of identification, there is a great deal of variation in size and more spectacularly in colour. All of which adds to the difficulty when attempting to assess their features whilst on the show bench.

Regrettably, apart from one paper from the British Museum, no sustained research has previously been available to the FBAS Judges and Standards Committee which created problems for the Coldwater Judges.

I had already started casting around for information and in doing so the first thing I heard of was a recently published book of Japanese fishes that contained photographs of several *Rhinogobius*. Obtaining a copy, I discover it only positively named two of the

*Rhinogobius ocellatus*. (Fowler 1937)



photographs, all the remainder being listed as species. What it did list, however, was a difference in size of some species between 45mm to 110mm. When the Japanese was translated by a friend of Charles Raggio, it transpired that some species varied from being confined to land-locked lakes as well as being present in river systems, and that these river fishes varied from being anadromous (*Ed's note: fish such as Salmon which spawn in freshwater, but feed primarily in the sea*) to entirely freshwater. With this difference in the habits and environment of the same species, the disparity in size, finnage, body shape and colour within that species is understandable given the variation in environmental conditions, the availability of food, the water conditions, still lake, slow or fast running river or stream, tidal estuary. These variations make it extremely difficult to assign to a fish on show. Which is it? Land-locked, riverine, or is it completely

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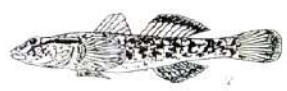
freshwater or anadromous?

But this is only part of the problem encountered when looking into this group of fishes. Having obtained copies of various scientific papers as well as information that Bob Jones had down-loaded off the Internet, I found some 51 fishes listed as being members of the *Rhinogobius* genus. In some of these publications it appears that several species are not considered to be *Rhinogobius* at all, as they have been misidentified or have been assigned a name when a holotype already existed and are either members of the genus *Acentrogobius*, *Bathygobius*, *Ctenogobius*, *Heteroplopus*, *Istigobius*, *Papillogobius*, *Pleurosticta*, *Tukugobius* or *Yongecichthys*.

It also appears that those listed in the FBAS Size Sheets as *Rhinogobius brunneus*, (that includes the sub-species *Rhinogobius brunneus lindbergi*) are considered to be members of the genus *Ctenogobius*. From day one I had not thought the name *Rhinogobius wui* was a valid name for no reason other than that I simply found it difficult to accept that a man of Professor Wu's standing would name a fish after himself. It now appears that *Rhinogobius wui* is in fact a synonym for *Ctenogobius diospylus* (Liu, 1940) and the only validly named *Rhinogobius* listed on the Federation's Size Sheets appears to be *Rhinogobius giurinus* (Rutter, 1897), and *Rhinogobius flumineus* (Mizuno, 1960). As an aside these also turn out to be the only identified fishes in the aforementioned Japanese book.

The following is a list of fish of the *Rhinogobius* genus that I have not found listed as synonyms and would therefore appear to be valid names:

- Rhinogobius albimaculatus* (Chan & Kottelat 1999) *Ctenogobius brunneus*. (Ternink & Schlegel 1845)
- Rhinogobius bucculentus* (Herre 1927)
- Rhinogobius candidianus* (Regan 1908)
- Rhinogobius carpenteri* (Seale 1910)
- Rhinogobius davidi* (Sauvage & Dabry de Thiersant 1874)
- Rhinogobius delicatus* (Chen & Shao 1996)
- Rhinogobius flaviventris* (Herre 1927)
- Rhinogobius flumineus* (Mizuno 1960)
- Rhinogobius gigas* (Aonuma & Chen 1996)
- Rhinogobius giurinus* (Rutter 1897)



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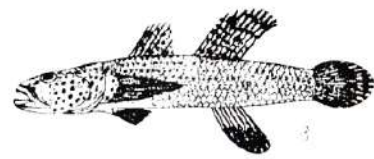


**BRACKLESHAM BAY**



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**Rhinogobius mekongianus.** (Pellegrin & Fang 1940)



- Rhinogobius benchuensis (Chen & Shao 1996)
- Rhinogobius boshinonis (Tanaka 1917)
- Rhinogobius lanyuensis (Chen, Miller & Fang 1998)
- Rhinogobius lentiginis (Wu & Zheng 1985)
- Rhinogobius lineatus (Chen, Kottelat & Miller 1999)
- Rhinogobius maculafasciatus (Chen & Shao 1996)
- Rhinogobius mekongianus (Pellegrin & Fang 1940)
- Rhinogobius nantaisiensis (Aonuma & Chen 1996)
- Rhinogobius nagoyae formosanus (Oshima 1919)
- Rhinogobius nagoyae nagoyae (Jordan & Seale 1906)
- Rhinogobius ocellatus (Fowler 1937)
- Rhinogobius rubromaculatus (Lee & Chen 1996)
- Rhinogobius similis (Gill 1859)
- Rhinogobius taenigera (Chen, Kottelat & Miller 1999)
- Rhinogobius stanshuensis (Chen & Wu & Shao 1996)

The following five are members of the Genus Rhinogobius but seem to have been misnamed.

SYNONYM	VALID NAME
Rhinogobius candidianus	Rhinogobius candidianus (Regan 1908)
Rhinogobius formosanus	Rhinogobius nagoyae formosanus (Oshima 1919)
Rhinogobius nagoyae	Rhinogobius nagoyae nagoyae (Jordan & Seale 1906)
Rhinogobius similis lindbergi	Rhinogobius similis (Gill 1859)
Rhinogobius tarawanus	Rhinogobius candidianus (Oshima 1919)

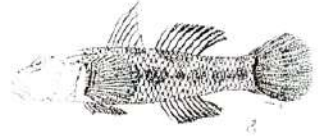
The following is a list of fishes I have found listed as Rhinogobius which appear to be synonyms.

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SYNONYM	VALID NAME
Rhinogobius atripinnatus	Accentrogobius chlorostigmatus (Smith 1931)
Rhinogobius baharoides	Yongclichthys nebulosus (Bleeker 1848)
Rhinogobius baharatus	Heteropropomus baharatus (Tomiyama 1934)
Rhinogobius brunneus	Ctenogobius brunneus (Temminck & Schlegel 1845)
Rhinogobius brunneus brunneus	Ctenogobius brunneus (Temminck & Schlegel 1845)
Rhinogobius brunneus lindbergi	Ctenogobius brunneus (Temminck & Schlegel 1845)
Rhinogobius calderae	Idigobius ornatus (Evermann & Seale 1907)
Rhinogobius deconatus	Idigobius deconatus (Herre 1927)
Rhinogobius hongkongensis	Idigobius campbelli (Seale 1914)
Rhinogobius laddi	Bathygobius laddi (Fowler 1931)
Rhinogobius longi	Yongclichthys nebulosus (Forsk. 1775)
Rhinogobius melanobranchius	Papillogobius melanobranchius (Fowler 1934)
Rhinogobius multifasciatus	Accentrogobius multifasciatus (Herre 1927)
Rhinogobius muscarum	Pleuroskya muscarum (Jordan & Seale 1906)
Rhinogobius nebulosus	Yongclichthys nebulosus (Forsk. 1775)
Rhinogobius pflaumi	Accentrogobius pflaumi (Bleeker 1853)
Rhinogobius philippinus	Turkigobius philippinus (Hewer 1927)
Rhinogobius robinsoni	Papillogobius reicheri (Fowler 1934)
Rhinogobius scapulopunctatus	Bathygobius scapulopunctatus (de Beaufort 1912)
Rhinogobius sulcatus	Accentrogobius sulcatus (Herre 1927)
Rhinogobius wui	Ctenogobius duospilus (Liu, 1940)

Two facts come to light in looking at the fishes that make up the Genus Rhinogobius and the associated genus. The first is that they are widely spread throughout the Far East and secondly, in the main are not true coldwater fishes. Therefore, I believe as such they should be benched and exhibited in with all other Gobies in Class M. Not only would this have them competing against like fishes but would bring us into line with the other Federations that we have just made agreements with to judge to a common set of Show Sizes. So, watch this space!!

**Rhinogobius nantaisiensis.** (Aonuma & Chen 1996)



I should like to hear from anyone who has information on this group of fishes. Please don't keep the information to yourself, share it with the rest of us.

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# Tetra



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This unique opportunity is only available to you through FBAS Merchandising. Obviously the cost of post and packing would be high on items of this kind, so we are offering **Coral Creations** for sale only at open shows and major shows and only whilst stocks last. Enquiries via the Merchandising Officer - address in your Year Book!

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GLOBAL E-MAILS

Are all fishkeepers mad? As the old saying goes, it certainly seems to help! The following is an E-mail from Greg Ure, an Australian Cichlophile Roger and I met at Aquanna 1999. Greg is quite a character and some of you may already know him... In addition on a more serious vein Reef Farm UK have E-mailed regarding sustainable fish, corals, clams and live rock.

**\*SOTALLY TOBER\***  
by Williburrr

starkle starkle little twink  
who the hell you are I think  
I'm not under what you call  
the alcohluence of incohol  
I'm just a little slort of sheep  
I'm not drunk like tinkle peep  
I don't know who is me yet  
but the drunker I stand here  
the longer I get  
Just give me one more drink  
to fill me cup  
'cuz I got all day sober  
to Sunday up

Regards  
Greg Off to Malawi Ure

Also on a more serious note:

From ReefFarmUK@cs.com

Sustainable reef products for the marine aquarium.

**FISH-CORALS-CLAMS-LIVE ROCK**

Dear Club Secretary,

For many years, exporters of marine ornamental products have been tarnished with a reputation of ripping up coral reefs, with complete disregard for the environment and their custodial owners. This reputation has grown out of Indonesia and the Philippines, where fish are caught with sodium cyanide, and corals are chipped from the reef with crowbars. It is a sorry practice that needs to be stopped as soon as possible.

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In recent years, some companies (there aren't many!) have pioneered production methods to change this industry-wide reputation. If the hobby is to grow solidly, then it must grow responsibly, and hobbyists should be offered items to purchase for their reef tanks that they know have been produced in ways, which are sensitive to the environment. Reef-Farm is one such company. It has a production and collection station in Vanuatu, S. Pacific, and is dedicated to the production and supply of sustainable reef products. We work in close co-operation with the Government of Vanuatu Fisheries and Environment Departments, as well as the International Marine Life Alliance, to enforce production techniques that are sensitive to the coral reef environment. Our range of products is produced in partnership with local community groups, who directly benefit from their involvement, and they are able to afford simple things (like sending their children to school!) which is taken for granted in places like the UK.

Our fish are all net caught, by divers who have been trained under the PADI system. They fish in several locations in rotation, allowing populations of fish to recover naturally before returning to the same location. Our invertebrates are all harvested using similar sustainable methods, that have a negligible impact on natural populations.

Our corals are cultured. Community producer groups snorkel over coral reefs, and pick up broken, but live pieces of coral. This usually takes place after a tropical storm. These pieces have fallen on to sand and would slowly die as they became buried. Instead, they are placed in a rocky holding area and allowed to recover. They are then fixed to a piece of living rock using an electrical cable tie. The coral slowly fuses to the rock and increases in size to become an attractive ornamental item. Pieces of coral that are not suitable for this purpose are re-planted out on the reef, speeding up the natural regeneration process.

Our clams are selectively harvested from the wild and replaced with tank-spawned clams, grown at the Department of Fisheries in Vanuatu. For every one taken from a coral reef, one is replaced. Some communities have now developed their own clam farms and they have become a novel tourist attraction.

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again using local, trained divers. It is heavily encrusted with coralline algae on all surfaces, compared to Fijian rock, which is chipped from the reef and only has colour on one side. The rock is water blasted to remove excess sponge that will die during transit, and to reduce curing time in the UK.

As part of our business expansion plans, Reef-Farm is setting up a direct marketing department in the UK. To help us in this process, we would like to gauge people's interest in our products, and in the whole 'sustainable production' ethos. As part of this process we think it is vital to include aquarium clubs and associations. Perhaps I could ask you to circulate this letter to your members to provoke thought and discussion on the topic? Is it something that genuinely interests hobbyists? Would club members like to take part in efforts to establish a 'chain of custody' database, where a product is tracked from community source to club member's aquarium? Would your club enjoy a presentation by Reef-Farm on sustainable reef-farming techniques?

To begin our UK operations, we are testing the marketing and logistics systems with live rock and invertebrates only at this stage, until our tank holding system has biologically matured. If there is sufficient interest (and when people see the quality of the product we are sure that there will be a lot of interest) we will be able to offer a full range of fish, corals and clams. I do hope that sustainable reef products, and the growing industry behind them are of interest to you and your club. If you have any questions, I will be pleased to do my best to answer them.

I look forward to your response.

**Editors Note:** If you are interested in making a response but do not have access to an E-Mail facility I would be happy to forward your comments to Reef-Farm. Send responses to me at the usual address.



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