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What you should know about carp: its origin, varieties, physical appearance, feeding habits

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What you should know about carp

its origin, varieties, physical appearance, feeding habits

Carp are often grouped on the basis of their natural geographical occurrence: the so-called Chinese carps, which include the grass carp, *Ctenopharyngodon idella*; the silver carp, *Hypophthalmichthys molitrix* and the bighead carp, *Aristichthys nobilis* and the so-called Indian major carps, which include *catla*, *Catla-catla*; *rohu*, *Labeo rohita*; *mrigal*, *Cirrhinus mrigala*; and the common carp, *Cyprinus carpio*.

Grass Carp

Grass carp is a natural inhabitant of the flatland rivers of China and the middle and lower reaches of river Amur in the USSR. It has been introduced into many other countries mainly for

In natural waters, it attains a length of 15 to 30 cm weighing 225 g to 650 g at the end of first year; a length of 60 cm and a weight of 1.8 to 2.3 kg at the end of the second year. After four years, the weight may be 4.5 kg.

The daily growth of grass carp in different countries, observed to be 2.8 g in Siberia, 3.3 in Turkmenia and South China, 6.6 to 9.8 in Israel, 4.7 in India and 8.3 to 10 in Malacca. In Chinese ponds, grass carp attains a weight of 225 to 680 g in first year, 1,200 to 2,300 g in second, 2,700 g in third and 3,800 g in the fourth year.

Grass carp matures variably depending on climate and environmental factors, especially temperature.

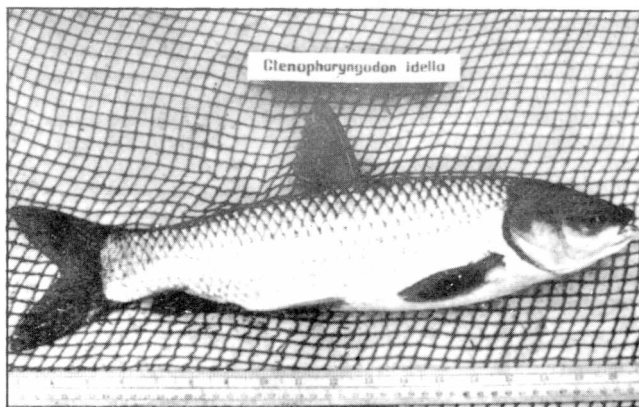
The fish breeds during monsoon months (July-August) in the flowing waters of its natural habitat, the rivers, but does not spawn naturally in the static waters of ponds and tanks.

Silver Carp

Silver carp naturally occurs in the river systems, Yangtze, West River, Kwangsi and Kwangtung in South and Central China and in the Amur Basin in USSR and has been introduced into many countries for aquaculture.

It feeds on both phytoplanktons and zooplanktons, rotifers and copepod nauplii and expands as they grow.

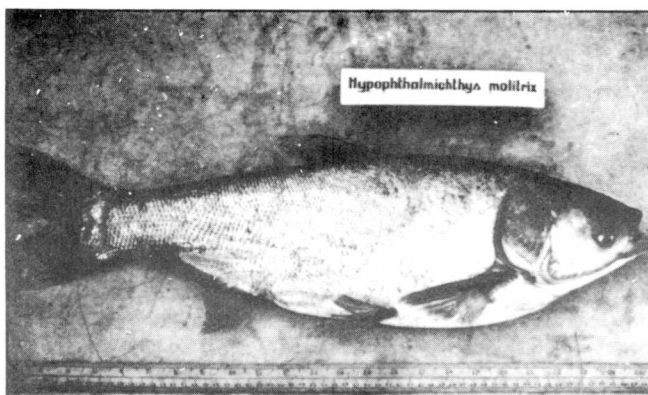
Under culture conditions, growth rate depends on stocking rate, natural food available and feeds given, competition with other species in polyculture, conversion rate of feed and envi-



biological aquatic weed control in natural waterways and in natural and man-made lakes.

Grass carp has a specialized pharyngeal teeth, the upper consisting of two small teeth on either side and the lower of strong comb or file-like teeth comprising four on the right and five on the left pharyngeal bone. In small fishes, the lower pharyngeal teeth have a serrated cutting surface, while in larger fish, the teeth are thicker and have double flattened serrated cutting and rasping surfaces. Large fishes can masticate even tough and fibrous grasses.

The fry and larger fish take cereal brans, oilcakes, silkworm pupae, kitchen refuse, night soil and dung which are often given as supplementary food.



ronmental conditions. Under favorable rearing conditions, the growth rate of fry of silver carp is extremely high in the first 10 days, the fish doubling its weight every second day. Silver carp attains highest growth rate in length in the second year of life and maximum growth rate in weight in the third year. Growth in both length and weight declines sharply after the third year.

Temperature has maximum effect on the maturity of silver carp just like grass carp but may not be applicable in locations other than China.

Bighead Carp

Bighead carp is a natural inhabitant of the river systems Yangtze, West River, Kwangsi and Kwangtung of south and central China and has been introduced into many countries.

Primarily a zooplankton feeder, its food resembles that of the Indian major carp catla which also feeds on zooplankton. Its alimentary canal is much shorter, than that of silver carp. A considerable measure of competition for food may be expected between bighead carp and catla.

In aquaculture operations, growth rate would depend on rate of stocking, food available naturally from aquatic fertilization and supplied supplementarily, competition with other species. The rate of growth of fingerlings may be 6.3 g/day and of young adults, 14.7 g/day.

The maximum growth in length, occurs on the second year and maximum growth in weight, on the third year. The pattern of attainment of maturity follows the same principle as that of silver carp and grass carp.

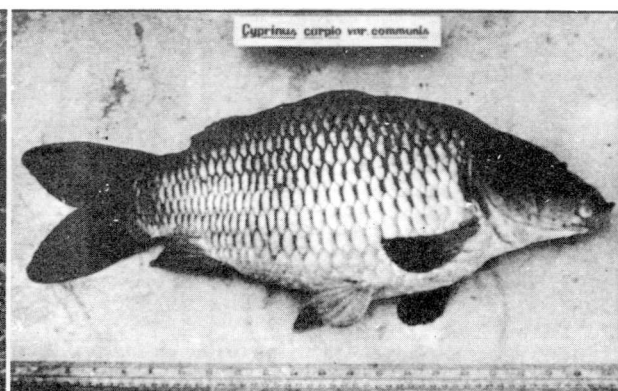
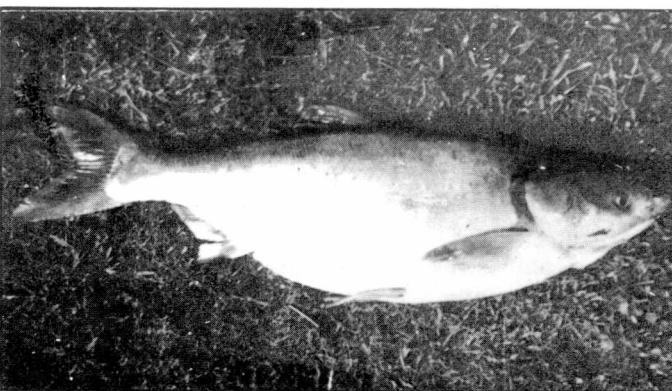
The fish breeds during monsoon months (July-August) in the flowing waters of its natural habitat, the rivers, but does not spawn naturally in the static waters of ponds and tanks.

Common Carp

The common carp a native of temperate regions of Asia, especially China, has four sub-species: *Cyprinus carpio* of the European-Transcaucasian area; *C.c. aralensis* of the mid-Asian region; *C.c. haematopterus* of the Amur-Chinese or Far Eastern region and *C.c. viridiviolaceus* of north Vietnam. The natural distribution of common carp maybe restricted to a narrow belt in central Asia and has been introduced into scores of countries.

There are varieties and subvarieties or strains of common carp. The well-known variety of the Kwantung and Kwangsi regions of China is the 'big belly carp: and that of the Yangtze region, the "long bodied carp." The well-known Indonesian orange-colored carp (*Cyprinus carpio* var. *flavipinnis* C.V.) has been split into a number of subvarieties, such as the lemon-colored *Sinyonya* and the gold brown *Katiera domas*. There is also the green variety in Indonesia, the "Punten carp" with stable genetic traits. The "Majalayan" strain of West Java is also a greenish variety. The mirror carp (*Cyprinus carpio* var. *specularis*) of the Galician variety or of the Franconian variety were transplanted into Indonesia in the first half of the 20th century and are distinct from the Aischgrunder (Germany) or Royale (France) varieties. The Russian mirror carp (*Cyprinus carpio* var. *specularis*) is now split into two varieties, the scale carp (*C.c. var. communis*) and the leather carp (*C.c. var. nudus*). The other varieties of common carp are the Japanese races which go by the name of Asagi and Yamato; Ropsha and Kursk of USSR; Dinnyes of Hungary and Nasice of Yugoslavia.

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Common carp bigger than 10 cm thrives on decayed vegetation containing tubificids, molluscs, chironomids, ephemerids and trichopterans. Common carp digs and burrows into pond embankments and sides in search of food. The fish gulp in mud sifting digestible matter thus making pond water turbid.

Under favorable conditions, growth of common carp varies in different countries. Common carp breeds naturally in rivers as well as in ponds and tanks. The eggs are adhesive and the fish requires suitable floating matters for attachments.

Catla

Catla is a natural inhabitant of the freshwater sections of the rivers of northern India, Pakistan, Bangladesh and Burma. Its favorite habitat are the deep rivers of north India and has been transplanted into Sri Lanka and China. Mixed seed of Indian major carps, which generally include catla, rohu and mrigal, has been exported to several countries.

While no distinct races or varieties of catla are known, catla, as a species is often confused with an allied form occurring in Thailand, *Catlocarpio siamensis* (Boulenger) due to their extraordinary superficial resemblance, especially their enormous heads.

A pair of five hybrids artificially produced in India, was induced to spawn by injecting pituitary hormone, producing a second generation of the hybrid. In 1960, several hundreds of golden colored catla were obtained from one artificially-bred specimen, and when interbred, all the progenies were found to be colored.

Catla is mainly a water column feeder and have a browsing habit as well. The presence of certain unattached submerged floating vegeta-

tion points out that the fish also explores the midlayers of water.

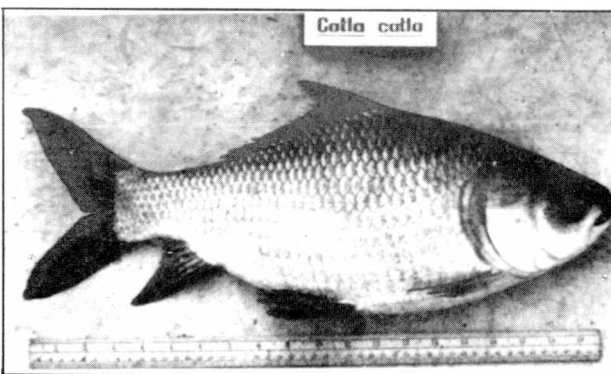
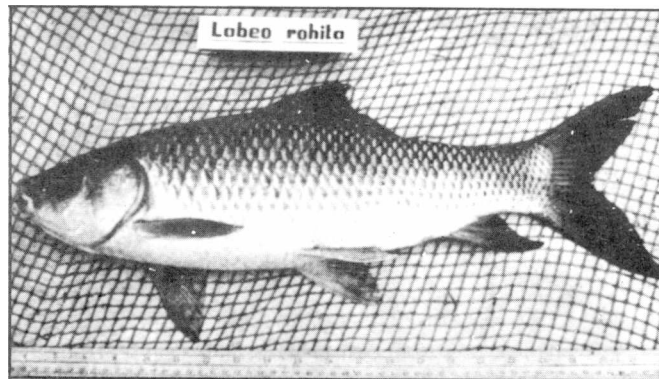
Catla is the fastest growing species of the major Indian carps and matures in its second year. In ponds catla matures after 22 months and in rivers, the second year.

The spawning season of catla coincides with the southwest monsoon in north-eastern India and Bangladesh, where it lasts from May to August and in north India and Pakistan, from June to September. In south Indian rivers, the spawning season is variable.

Rohu

Rohu is found in the freshwater sections of the rivers of north India, Pakistan, Bangladesh, Burma and the Tera region of Nepal. It has been transplanted into some of the rivers of peninsular India and Powai Lake, Bombay, Sri Lanka and to Mauritius. Mixed along with the seed of catla and mrigal, rohu has been exported to USSR, Japan, Philippines, Malaysia, Nepal and some countries of Africa.

Rohu is both a bottom and column feeder and prefers to feed on plant matter including de-



caying vegetation; it is less adapted to take zooplankton than even mrigal. Utilization of plant matter is much better in mrigal and rohu than in catla. Rohu fingerlings subsist on unicellular and filamentous algae, rotting vegetation, rotifers and protozoans and crustaceans. The rotten vegetation component in the food increases in bigger fish.

Rohu is a quick growing fish although slower than catla and generally spawns during southwest monsoon in India.

Mrigal

Mrigal is a natural inhabitant of the fresh-water sections of the rivers of northern India, Bangladesh, Burma and Pakistan. It has been transplanted into waters of peninsular India for aquaculture.

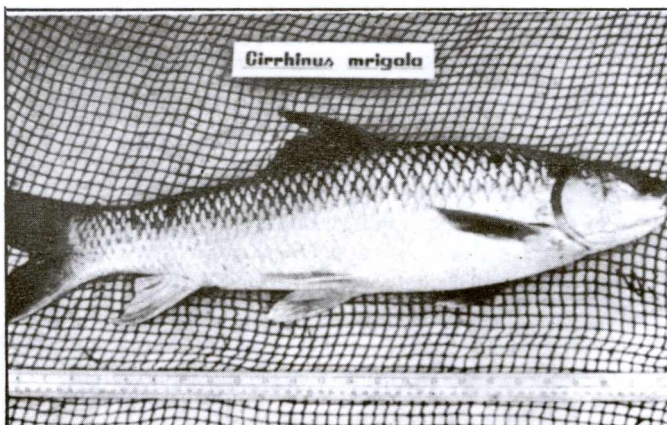
A large number of intergeneric hybrids has been produced at the Pond Culture Division of the Central Inland Fisheries Research Institute, India.

The first generation hybrids of male mrigal and female rohu were produced in 1958.

Mrigal is a detritus eater with a narrow range in food variety. It is a bottom feeder subsisting mainly on decayed vegetation. Some workers consider mrigal an omnivore also frequenting the water column for feeding.

In natural waters, the fish shows a very rapid growth rate in the first four years of its life, followed by a period of slow growth in the next three years. The growth rate thereafter becomes even slower.

A highly varied growth rate under culture condition depends on stocking rate, natural food



available and supplemental feeds given, competition with other species and environmental conditions.

Sources: A Hatchery Manual for the Common, Chinese and India Major Carps. V.G. Jhingran, R.S.V. Pullin. 1985.

Culture of Carps in Pens and Cages. International Training Course on Freshwater Course. Training and Information Division, SEAFDEC, Tigbauan, Iloilo.

Do you know?

- 1. It is traditional for many continental wives particularly Eastern Europe to serve carp at Christmas just as in the U.K., U.S. & Canada were turkey.*
- 2. Carp culture dates back to more than 3000 years in China. The practice was first described by Fan Li in 473 BC. However, during the Tang Dynasty (618-907) common carp raising was banned because the name of the emperor was "Li" which sounded the same as the Chinese name for it. It could not be kept or killed and therefore alternative species were sought to replace it resulting to successful breeding and production of the major carps - each with own feeding habits*
- 3. The production of colored carp - the Japanese "nishikigoi" - presently exceeds in monetary value the production of carp as human food. The nishikogoi as "swimming flowers" delight modern people as much as the taste of carp delights the Romans.*