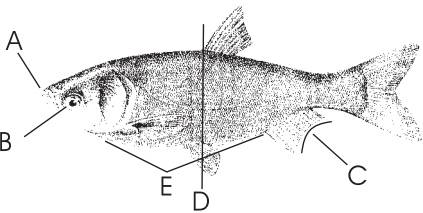
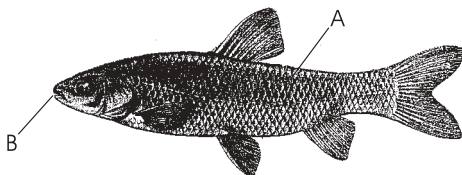


- fins of small specimens without spines
- pectoral fin with 15-18 rays and stiff, hard spine having a finely serrated posterior (rear) margin
- dorsal fin with moderately stiff, nonserrate spinelike ray at origin
- anal fin (C) falcate (i.e. hooked) with 12-13 rays and slightly stiffened, nonserrate spine at origin
- dorsal fin with 8 rays and origin of fin (D) behind pelvic insertion
- a smooth ventral keel (E) extending from base of anal fin to isthmus at the base of the gills
- gill rakers extremely numerous and fused or covered with a netlike or sponglike porous matrix
- pharyngeal teeth 4-4, moderately long and bluntly rounded
- intestine very long with many loops, its length 3-6 times longer than total fish length



Black carp

- thick, elongate body with broad, blunt head
- golden/dark grey/brown color with scales on back and sides showing a prominently dark-edged, giving a characteristic cross-hatched effect (A)
- subterminal mouth (B) with thin unspecialized lips
- dorsal fin short and pointed with 7-8 rays and situated over the pelvic fins
- anal fin closer to caudal fin than in



native minnow (i.e. distance from front of anal fin base to base of caudal fin going more than 2.5 times into the distance from anal fin base forward to tip of snout)

- throat teeth fused (See Figure 2-II), molariform (i.e. knobs looking similar to human molars)



Information Sources:

Etnier, D.A. and W.C. Starne. 1993. The fishes of Tennessee. University of Tennessee Press, Knoxville. 681 pp.

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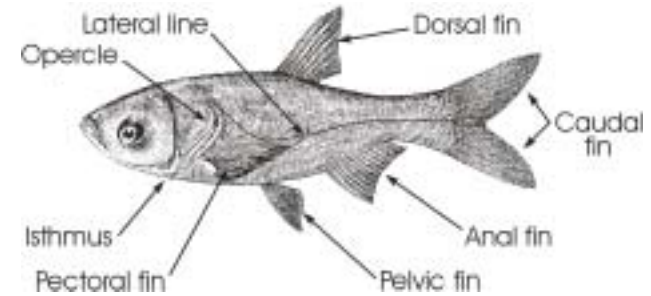
USGS Online. Nonindigenous aquatic species. <http://nas.er.usgs.gov/fishes/accounts/>

For more information contact:



Revised - 30 April 2004

Asian Carp



Key To Identification

Asian carp are large 39-40 in. (40-50 lb.) fish introduced into the U.S. by fish farmers in Southern states in the 1960's and 70's to control vegetation and algae blooms. Three of these species, the grass carp (*Ctenopharyngodon idella*), bighead carp (*Hypophthalmichthys nobilis*), and silver carp (*Hypophthalmichthys molitrix*) have been released or have escaped to the wild and are reproducing in many rivers and streams of the Mississippi River Basin. As they continue to expand their range, and show up in commercial and sport fish catches, a need has arisen to develop a simple key to assist fishers and resource managers in making quick and accurate field identifications.

Five species are included in this key. In addition to the grass, bighead and silver carps; the common carp (*Cyprinus carpio*) and the black carp (*Mylopharyngodon piceus*) have also been included. The black carp is being used extensively by fish farmers, primarily in Southern states, to control snails that harbor a trematode parasite that infests catfish and taints their flesh. The black carp is similar in appearance to the grass carp, and the possibility of its escape from captivity is high, so resource managers and fishers are urged to be watchful for it. The key to Asian carp identification which follows assumes that the reader can readily distinguish the common carp from other fish species:

1. Dorsal fin rays 13 or more; dorsal and anal fins with a strongly serrated (barbed) anterior (front) spine.....Common carp

Dorsal fin rays 9 or fewer; dorsal and anal fins lacking strongly serrated spines.....2
2. Distance from origin of anal fin to caudal fin base equal to distance from anal fin origin to pelvic fin insertion (Figure 1-I), scales large, carp-like.....3

Distance from origin of anal fin to caudal fin base 1.5 to 2 times distance from anal fin origin to pelvic fin insertion (Figure 1-II), scales small, trout-like.....4

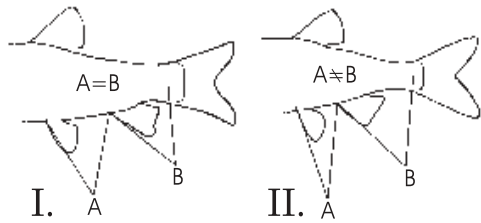


Figure 1. Relative anal fin positions of Asian carps.

3. Pharyngeal teeth 2,5-4,2 (located behind the mouth in the throat) with prominent parallel grooves (Figure 2-I).....Grass carp

Pharyngeal teeth molariform (Figure 2-II).....Black carp

4. Ventral keel on abdomen (belly) extends forward only to the base of pelvic fins; gill rakers long and slender; body with scattered dark blotches.....bighead carp

Ventral keel on abdomen extends forward past pelvic fin base to isthmus (i.e. base of gills): gill rakers forming a compact mass covered by a net-like matrix; body lacking scattered dark blotches.....silver carp

Further descriptive details by species follow:

Grass carp

- thick, elongate body with broad, blunt head
- silver/pale grey color with scales on back and sides showing a prominently dark-edge, giving a characteristic cross-hatched effect (A)
- subterminal mouth (B) with thin unspecialized lips
- dorsal fin short and pointed with 7-8 rays and situated over the pelvic fins

- anal fin closer to caudal fin than in native minnows (i.e. distance from front of anal fin base to base of caudal fin going more than 2.5 times into the distance from anal fin base forward to tip of snout)
- pharyngeal throat teeth 2,4-5-4,2 (those in principal row with deep parallel grooves (See Figure 2-I)



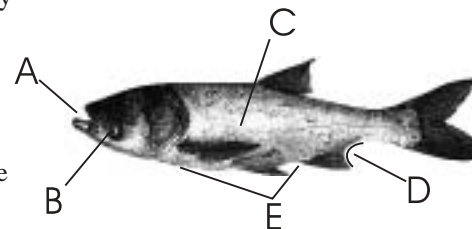
Juvenile grass carp



Grass carp (*Ctenopharyngodon idella*)
 ■ Drainages with introductions

Bighead carp

- deep bodied, somewhat laterally compressed body with back and upper sides dark gray grading to off-white on lower sides and belly, many dark to black irregularly shaped blotches scattered over entire body
- young silver in color, not developing blotches until about 8 weeks of age (see juvenile photo)
- large, scaleless head and opercle
- mouth large and terminal (A) without teeth in jaws, and with lower jaw projecting beyond upper jaw
- eyes situated far forward (B) along midline of body and projecting downward
- scales very tiny, cycloid, resembling those of trout
- lateral line complete



and strongly decurved anteriorly (C) with 85-100 scales

- scale rows above lateral line 26-28
- fins of small specimens without spines
- pectoral fins with 16-21 rays and large individuals with sharp, nonserrate ridges along several of the anterior rays
- moderately stiff nonserrated spine at dorsal fin origin
- anal fin falcate (i.e. hooked) (D) with 13-14 soft rays
- smooth ventral keel (E) extending from vent forward to pelvic fin base
- gill rakers long, comblike (length 40 times width) and close-set, not fused into a porous, net-like plate
- pharyngeal teeth 4-4, moderately long and bluntly rounded
- intestine long with many loops, its length 3-5 times longer than the total fish length

Silver carp

- deep-bodied, laterally compressed body, very silvery in color in young with back and upper sides changing to olivaceous (greenish), grading to silver below the lateral line in adults
- scales very tiny and cycloid, resembling those of trout
- head and opercle scaleless with relatively large, upturned mouth (A) without teeth in jaws
- eyes situated far forward (B) along the midline of the body and projecting somewhat downward
- lateral line scales approximately 95-103



Juvenile bighead carp



Bighead carp (*Hypophthalmichthys nobilis*)
 ■ Drainages with introductions



I. grass carp teeth



II. molariform teeth

Figure 2. Anterior view of pharyngeal arches showing teeth configurations of grass carp and black carp-like (i.e. molariform) teeth.