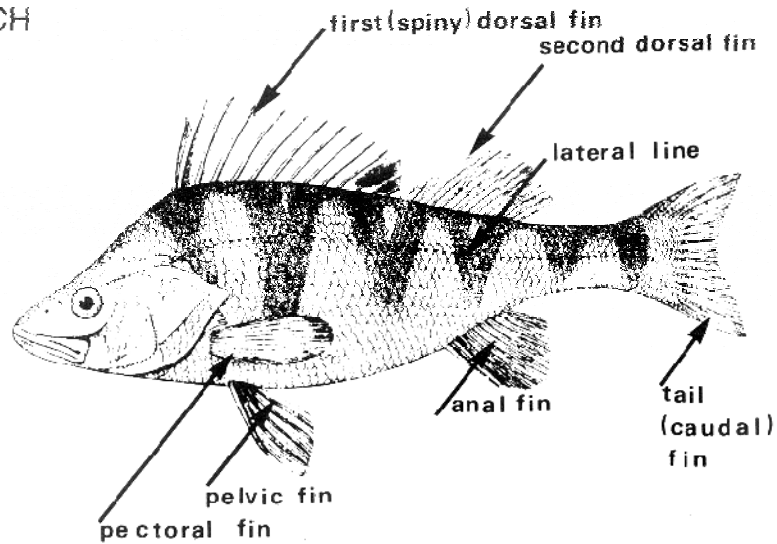


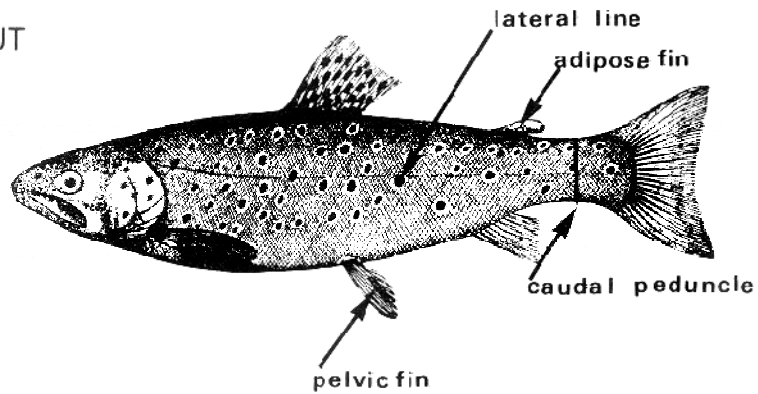


Institute of Fisheries Management
SPECIALIST SECTION –
RESOURCE

PERCH



TROUT



Key to the Identification of Freshwater
Fishes in Britain *Alwyne Wheeler*



INSTITUTE OF FISHERIES MANAGEMENT

KEY TO THE IDENTIFICATION OF FRESHWATER FISHES IN BRITAIN

This key by Alwyne Wheeler is based on one of a series of advisory leaflets prepared by the Resource Section in 1984 (reprinted 1985). This leaflet is now out of print and is being reissued in modified and downloadable form on the web-site (www.ifm.org.uk).

ADDENDUM February 2007

Recent colonisations of a number of waters by two non-native species, the topmouth gudgeon (or false harlequin) and the sunbleak mean that these species may be encountered and additional notes have been placed in the key and indicated by *. For more detailed description and an alternative key, readers are referred to Maitland, P.S. (2004). *Keys to the freshwater fish of Britain and Ireland, with notes on their distribution and ecology*. Freshwater Biological Association Scientific Publication No. 62. For more information on freshwater fish generally see C. Davies, J. Shelley, P. Harding, R. Gardiner and G. Peirson (2004). *Freshwater Fishes in Britain*. Harley Books)

INTRODUCTION

This key is intended to help with the identification of fishes found in rivers and lakes in the British Isles. It includes some fishes which are migratory and are therefore found in the lower reaches of rivers and many of the widespread exotic species which have been introduced and are established in Britain. Two "native" species are omitted, the burbot, *Lota lota*, because it is probably extinct, and the sturgeon, *Acipenser sturio*, which is excessively rare and almost always caught at sea (it is also a highly distinctive fish).

Being compressed in order to save space, many distinctive features which help to clinch the identification of "difficult" species have been omitted. However, the features given should point the user to the probable identity of the fish. In cases where certain identification is essential and the fish does not "fit" clearly into the features given, check all the features in a reliable book (see Addendum).

Ichthyologists identify fishes by differences in body proportions (morphometric features) and countable characters, such as numbers of fin rays, lateral line scales, and vertebrae (meristic features). Although these details are often included in texts intended to help identification they are difficult to use for those who have to identify live fishes, and are largely unnecessary in the context of the relatively small number of freshwater fishes in Britain. However, because fishery workers will encounter some of these terms, those which occur most frequently are listed below.

Morphometric features

Standard length -tip of the snout to the end of the hypural bones (i.e.where the tail fin flexes at the base of the fin rays).

Fork length - tip of the snout to the fork of the tail fin.

Total length -tip of the snout to the extreme end of the tail fin.

Head length -tip of the snout to the rear edge of the gill cover.

Snout length -tip of the snout to the front edge of the eye.

Body depth -body height at its deepest (back to belly).

Caudal peduncle depth -height of the body at its narrowest in front of the tail fin.

Meristic features

Lateral line scales - count only the scales with a pore.

Dorsal (or anal spines) -count all fin spines (usually expressed in capital Roman numerals i.e. IX).

Fin rays -count all fin rays, but beware of the last dorsal or anal ray which is often branched at the base (usually expressed in Arabic numerals, i.e. 9).

This key does not include the hybrids of cyprinids or the even more perplexing salmonid hybrids.

Biological keys are usually dichotomous, that is they offer two choices usually in contrasting couplets. They are also often organised to give the answers in systematic sequence. The present key is unorthodox in that it gets the groups broken down quickly and in the order which gives the quickest answer. It also sometimes offers more than two choices.

Using a key is simple - even if it looks formidably complicated. Start at paragraph 1 in which you have three choices a, b, or c. If the body of the fish is flattened as described, you are lucky and have found a flounder. If not then the features described will lead you to paragraphs 2 or 4 (most likely 4, into which most of our fishes fit).

toothless, scales large, sides and belly silvery white with greyish lines on sides. Lower tidal reaches of rivers only.
24 inches

thin-lipped grey mullet

- 9 **a** First (spiny) and second dorsal fins continuous, body deep, wavy greeny- blue lines on upper sides, black spot on gill cover. Sporadic in ponds and lakes. 10 inches **- pumpkinseed**
- b** A deep notch between first and second dorsal fins, body moderately deep, mouth very large, a broken dark band along sides. Present in one Dorset lake. 32 inches **- large-mouth black bass**
- 10 **a** Two dorsal fins, the first composed of slender flexible spines, head broad and depressed, a short curved spine on each gill cover. Rivers and large lakes usually on stony bottoms. 4 inches **- bullhead**
- b** Usually one dorsal fin (where a second rayless fleshy fin is present there are long barbels on chin) **- see 11**
- c** Two dorsal fins, the second a small rayless fleshy fin (adipose fin) but no barbels on chin **- see 27**
- 11 **a** Strong teeth in lower jaw, jaws large, dorsal and anal fins near the tail. 50 inches **- pike**
- b** Teeth minute, belly sharp-edged with saw-tooth- scales, lateral line absent **- see 12**
- c** Teeth absent belly rounded or smooth-edged, lateral line usually present all down the side **-see 13**
- 12 **a** Upper jaw notched in mid-line, gill covers weakly ridged, line of black blotches behind head. Lower rivers only. (Landlocked population in Killarney). 22 inches **- twaite shad**
- b** Upper jaw notched, gill covers weakly ridged, a single black blotch only behind head. River mouths; exceptionally rare. 24 inches **- allis shad**
- 13 **a** At least a pair of barbels in mouth region, sometimes small **- see 14**
- b** No barbels on chin, lips, or at corner of mouth **- see 20**
- 14 **a** A long barbel attached to the upper jaw bone, others on chin (catfishes) **- see 15**
- b** Moderate to small barbels on chin and mouth, skin apparently scaleless small fishes (loaches) **- see 16**
- c** Moderate to small barbels on lips only, distinct scales on body **- see 17**
- 15 **a** Dorsal fin small; anal fin very long, many rayed. A few large lakes. 39 inches **- wels catfish**
- b** Dorsal fin moderate In size, a distinct adipose fin on back; anal fin moderate in size. Scattered ponds, canals and rivers. 12 inches **- black bullhead (catfish)**

- 16 **a** Barbels moderate in size; sides rounded; blotched yellowish-greeny- brown.
Rivers and clear lakes, common. 4 inches - **stone loach**
- b** Barbels minute; sharp retractile, backward-pointing spine on cheek; sides flattened; conspicuous row of dark blotches on sides. Rivers, drainage canals, and still waters, eastern England, only 4 inches - **spined loach**
- 17 **a** Two pairs of barbels on lips - see 18
- b** One pair of small barbels at angle of mouth - see 19
- 18 **a** Dorsal fin short-based but high. Rivers in moderate current.
36 inches. **barbel**
- b** Dorsal fin long based, high in front, concave in mid-section.
Scales large, sometimes few, or none. Lakes, canals,
slow rivers. 50 inches - **carp**
- Note: The fully scaled form, which is closest to the original wild eastern-European stock, is the **common or king carp**. **Mirror carp** have a line of large mirror-like scales along the side of the body. **Leather carp** are scaleless or more usually have moderate scales along the base of the dorsal fin and along the lateral line.*
- 19 **a** Body elongate; dorsal, anal and tail fins not rounded; scales large. Lowland rivers in slow to moderate currents, and lakes. 6 inches - **gudgeon**
- b** Body thickset; dorsal, anal, and tail fins rounded; scales minute. Lakes and slow lowland rivers. 20 inches - **tench**
- 20 **a** Anal fin long, always 16 or more long rays; pelvic fins pale in colour - see 21
- b** Anal fin short, never more than eleven long rays; pelvic fins reddish to bright red - see 22
- c** Anal fin short, never more than ten long rays; pelvic fins pale - see 23
- 21 **a** Body moderate to very deep; mouth ventral, can protrude to form a tube; anal rays 24-30; eye small. Lakes and large slow rivers.
Common. 24 inches - **breem (bronze breem)**
- b** Body moderately deep; mouth at end of snout, not protrusible; anal rays 21-23; eye large, diameter equals snout length.
Lakes and slow rivers. Eastern England. 12 inches - **silver breem**
- c** Body slender; mouth opening at upper tip of snout, oblique; anal rays 16-20; eye large. Surface waters of rivers. England. 6 inches - **bleak**
- d** Body slender; mouth opening at upper tip of snout, oblique; anal rays 15-17; eye large. Lateral line dark and short, up to tenth scale. Isolated waters, introduced, 4 inches - ***sunbleak**
- 22 **a** Origin of dorsal fin above pelvic fin base; mouth opening at end of snout; iris of eye red; pelvic and anal fins orange to red.
Abundant in lakes and rivers. 20 inches - **roach**
- b** Dorsal fin behind pelvic fin base; mouth opening at tip of snout, mouth strongly oblique; pelvic and anal fins scarlet to red; sides with bronze shading.

- Lakes and canals. 15 inches - **rudd**
- 23 **a** Dorsal fin base twice length of anal base; 14 or more dorsal rays; body stout, scales moderate in size - see 24
- b** Dorsal fin base equal to anal base length; body slender; scales minute, Shallow rivers and stony bottomed lakes. 4 inches - **minnow**
- c** Dorsal fin base equal to anal base length; body moderately deep to slender; scales moderate in size - see 25
- 24 **a** Anal fin spine lightly serrated on rear edge, 6-8 full length rays; dorsal fin outline convex. Pools and lakes; mostly eastern England. 20 inches - **crucian carp**
- b** Anal fin spine deeply serrated on rear edge, 5-6 full length rays; dorsal fin outline usually shallowly concave. Lakes and slow rivers; introduced. 12 inches - **goldfish + gibel carp**
- 25 **a** Lateral line short, pores only on the first 5-6 scales behind head; Moderately deep-bodied; a metallic streak along tail. Isolated lakes and canals; introduced. 3 inches - **bitterling**
- b** Lateral line long, pores from head to tail - see 26
- 26 **a** Scales small, 56-61 in lateral line; anal fin slightly concave; body humped at head broad, snout blunt. Silvery, sometimes golden. Isolated lakes and rivers; introduced. 17 inches **ide (golden orfe)**
- b** Scales moderate in size, 48-51 in lateral line; anal fin strongly concave; dorsal fin above pelvic fin base; body slender. Silvery. Rivers; common. 10 inches **dace**
- c** Scales moderate in size, 44-46 in lateral line; anal fin convex; dorsal fin origin behind pelvic fin base; head and "shoulders" broad. Silvery with scale edges dusky. Rivers and large lakes. 20 inches - **chub**
- d** Scales moderate in size, 34-38 in lateral line; anal fin convex; dorsal fin origin in front of pelvic fin base; spreading, introduced 4 inches. - ***topmouth gudgeon**
- 27 **a** Scales moderately large; no teeth in jaws or at most very small teeth - see 28
- b** Scales small; teeth in jaws large and conspicuous, small teeth also present - see 29
- 28 **a** Dorsal fin long-based (17-24 rays) and high; jaw teeth small. Clean fast flowing rivers. 20 inches - **grayling**
- b** Dorsal fin short-based, never more than 12 rays; no teeth in jaws. Lakes in highland areas, rarely in effluent rivers - **whitefishes**

Note: as the whitefishes are confined to isolated lakes, they can be identified geographically:
gwyniad – Llyn Tegid, **powan** – Loch Eck, Loch Lomond, **schellies** – Haweswater, Ullswater; **vendace** – Derwentwater, Bassenthwaite, Loch Maben (probably extinct); **pollan** – Lough Erne, Lough Ree, Lough Derg, Lough Neagh.

- 29 **a** Strong cucumber smell; pale translucent yellowish colour; teeth

- comparatively large; scales fall off at touch.
Estuaries and lower rivers. 11 inches - **smelt**
- b** Normal fishy smell; silvery sides, variously dark and red spotted;
teeth moderate; scales fairly well attached - see 30
- 30 **a** Anal fin base equal to dorsal fin base with fewer than 12 principal rays - see 31
- b** Anal fin base longer than dorsal fin base with 13-19 full length rays.
Lower rivers and estuaries, introduced. Rare vagrants - **Pacific salmon**

*Note: two species have occurred in British rivers or seas, the **pink or humpback salmon** and the **coho**. Either may occur in the future,*

- 31 **a** Pelvic and anal fins (and pectorals less noticeably) with a conspicuous dull
white leading edge; scales very small - see 32
- b** Pelvic and anal fins with leading edge pale but not notably different
from remainder of fin; scales small to moderate - see 33
- 32 **a** Fin rays behind leading edge of pelvic and anal fins reddish; belly pink to
red, red and white spots on sides; scales very small, 123-152 in lateral line.
Mountain lakes in N. Wales, Lake District Scotland and Ireland. 12 inches - **charr**
- b** Fin rays behind leading edge of pelvic and anal fins dark grey to black,
belly silvery, creamy spots on sides merging with pale wavy lines on back;
scales small, 110-130 in lateral line. Introduced.
In stocked lakes mostly. 24 inches **brook charr (trout)**
- 33 **a** "Wrist" of tail narrow; upper jaw bone extends to level of eye; tail fin slightly
forked; gill rakers on the first gill arch slender, 15-20 in number;
small dark spots on upper sides rarely extending below lateral line.
Large clean rivers; migratory. 50 inches - **salmon**
- b** "Wrist" of tail broad; upper jaw bone extends past rear end of eye; tail fin
square cut or slightly concave; gill rakers on first gill arch thick and short,
14-17 in number; numerous dark spots on sides extending below lateral line.
Rivers and lakes, often stocked. 30 inches - **trout (brown & sea)**
- c** "Wrist" of tail broad; upper jaw bone moderately long; iridescent (rainbow)
stripe along sides, body heavily dark spotted, dorsal and tail fins dark spotted.
Stocked in lakes and rivers. 30 inches - **rainbow trout**