

**Cleithra** (singular - cleithrum) are paired, crescent shaped, flat bones that are the main supports of the shoulder girdle. They are just visible under the skin, on either side of the head immediately behind the gill covers. They are near the surface of the body and can be easily removed by hand. The step-by-step procedure for removing the cleithrum is detailed and illustrated below. The basic points for removing the left cleithrum by hand are as follows:

A. Hold the fish with the head facing left, and grasp the fish behind the pectoral fins with the right hand. Hold the fingers of the left hand over the top of the head.

B. Use the thumb of the left hand to lift the opercular flap (gill cover), exposing the cleithrum just posterior (behind) to the gills.

C. Push the thumb between the posterior edge of the cleithrum and the connective tissue and muscle.

D-E. Move the thumb towards the top, and then towards the bottom, to separate most of the inner surface of the bone from the underlying soft tissue.

F. Push the thumb or index finger of the left hand through the soft connective tissue in the middle anterior of the cleithrum.

G. Hook the index finger from the outside through this hole and firmly pull the cleithrum away from its dorsal connection, exposing the dorsal spine

H-I. When the dorsal tip has been released (in very large fish some of the heavy connective tissue may have to be cut away to ease the separation) grasp it between thumb and index finger.

J-K. Pull the cleithrum out from the body and towards the anterior (front of the fish). This will expose the anterior tip. It is important during this process to pull the cleithrum strongly away from the body to avoid breaking or tearing the extreme anterior tip and growing edge.

L. Push the cleithrum over the thumb of the same hand or the index finger of the other hand to hold back the adhering soft tissue. This peels away the muscle and connective tissue from the outer surface of the cleithrum

M-N. A clean cleithrum showing annuli (curved lines) indicating age.

