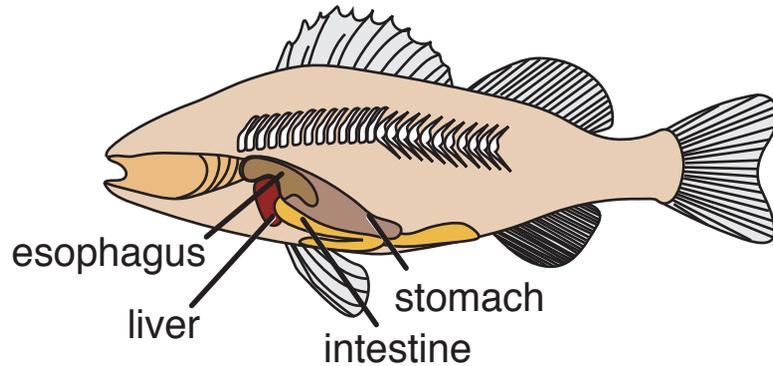


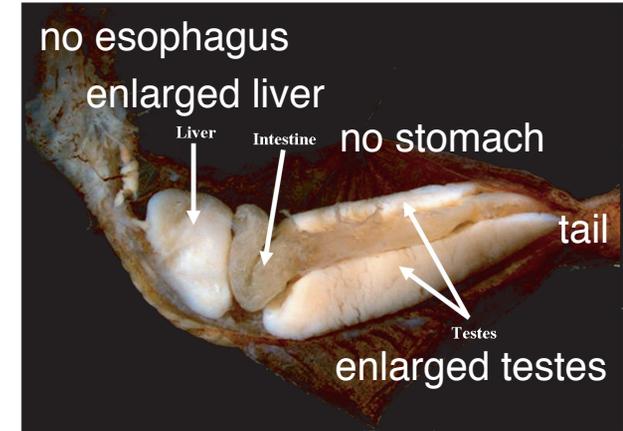
GUT MORPHOLOGY CARD

The gut morphology or internal anatomy of the three fish groups can provide evidence of their feeding habits.

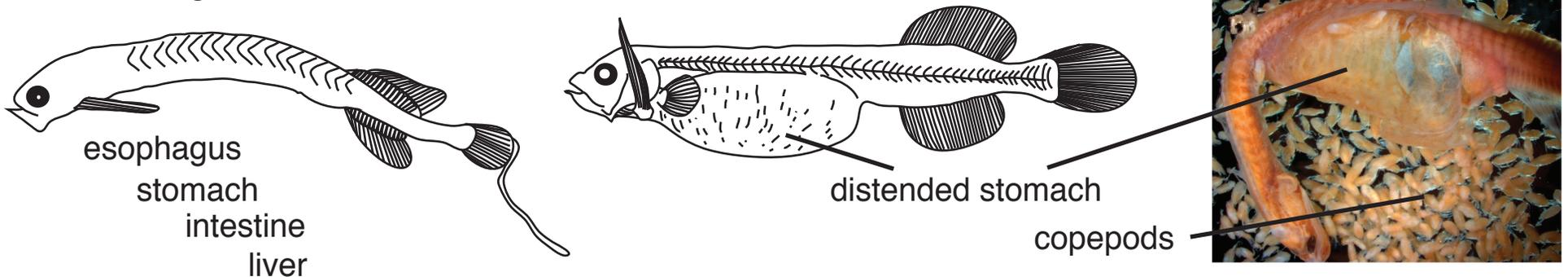
WHALEFISHES have normal gut morphology and all of the organs and structures you expect to see in most fishes (only some are shown here).



BIGNOSE FISHES are missing some typical features and others are enlarged.



TAPETAILES can have all of the organs and structures you would expect to see in most fishes. However, some are found with stomachs full of more copepods than a fish could digest in a short time frame.

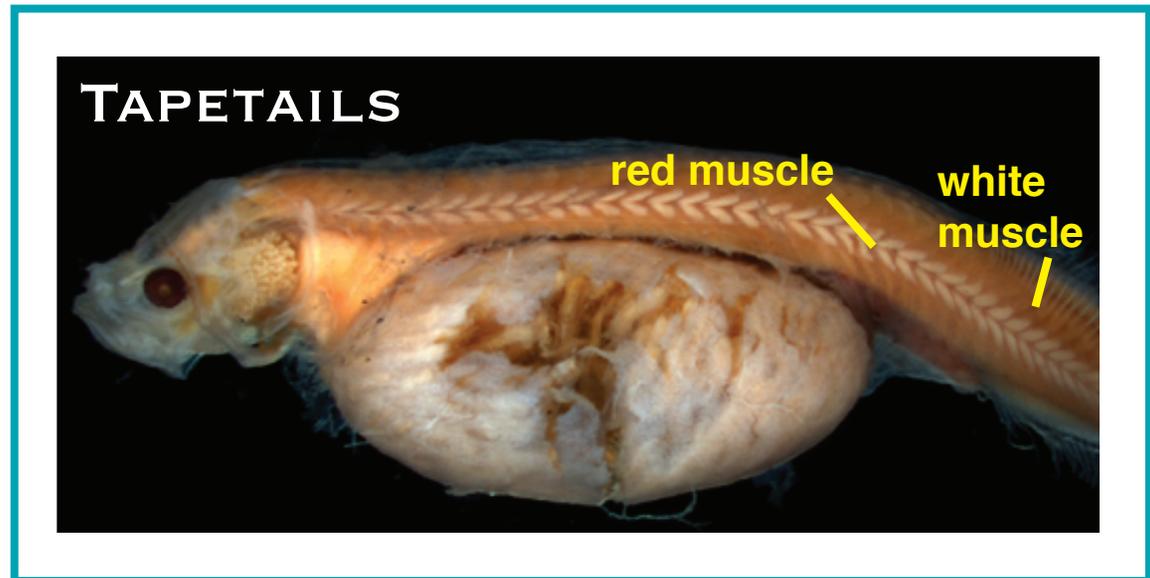


MUSCLE MORPHOLOGY CARD

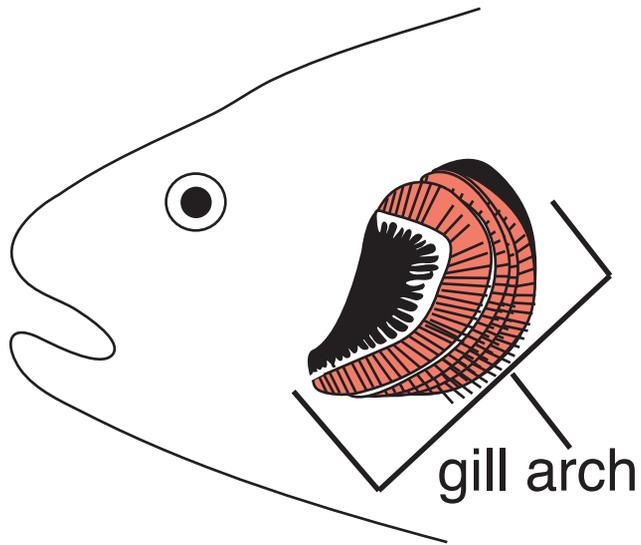
These are photos of the muscle tissue from a member of each clade. There are two different types of muscle tissue — ‘red’ and ‘white’.

RED MUSCLE appears **white or cream** when preserved. It is aerobic meaning it has many capillaries and a high myoglobin content, providing lots of oxygen to the tissues. More red muscle indicates active fish that are steady, strong swimmers.

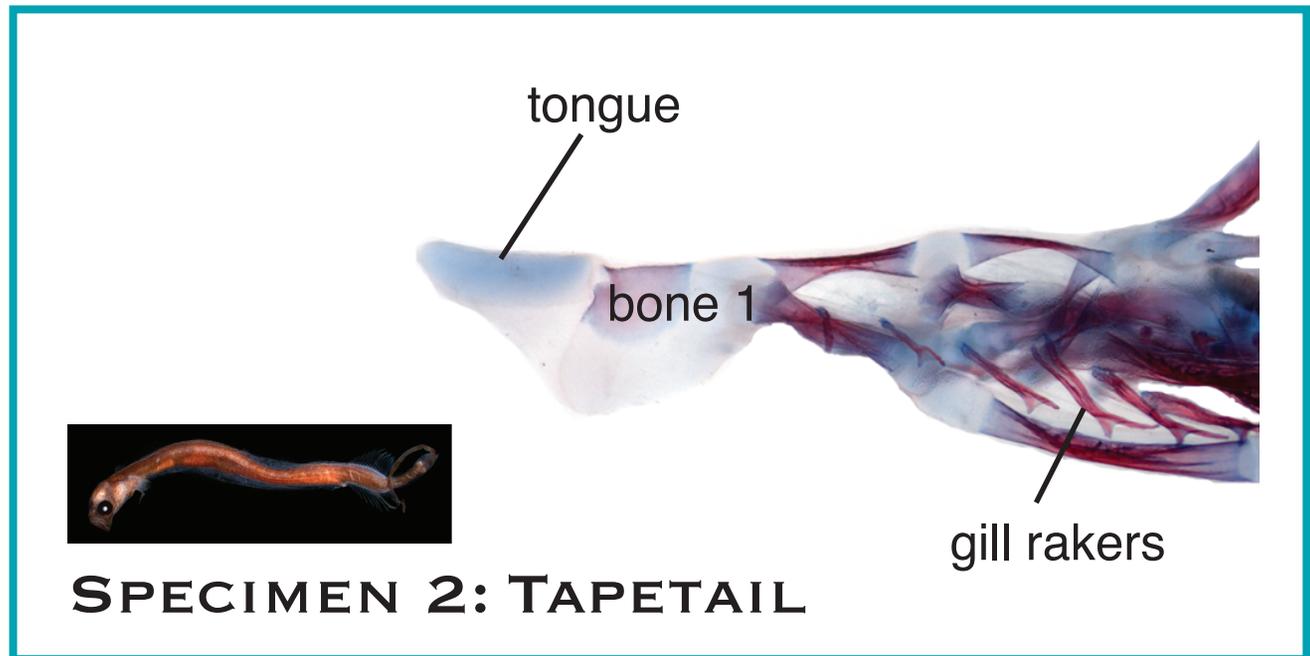
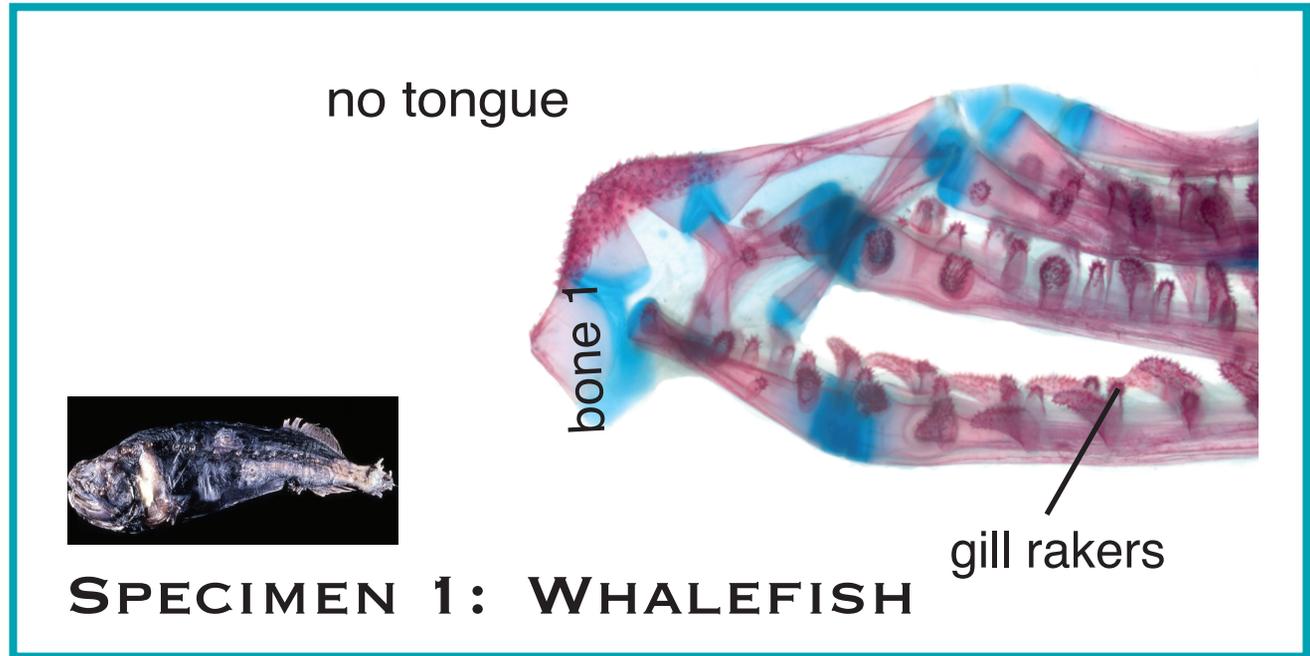
WHITE MUSCLE appears **red or brown** when preserved, has few capillaries and lacks myoglobin. This tissue is anaerobic. Lots of white muscle indicates a relatively inactive lifestyle (e.g. floating in currents) with short bursts of movement.



GILL ARCH MORPHOLOGY CARD A

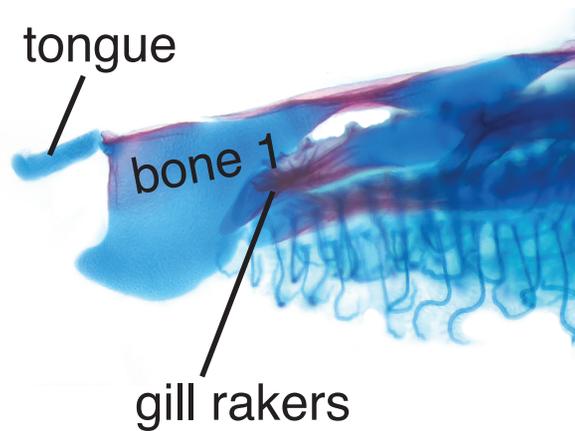


These are pictures of cleared and stained gill arches from a Whalefish (Specimen 1) and a Tapetail (Specimen 2). Three features are labeled.

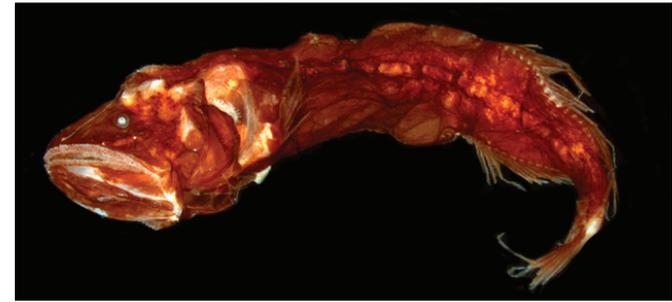


GILL ARCH MORPHOLOGY CARD B

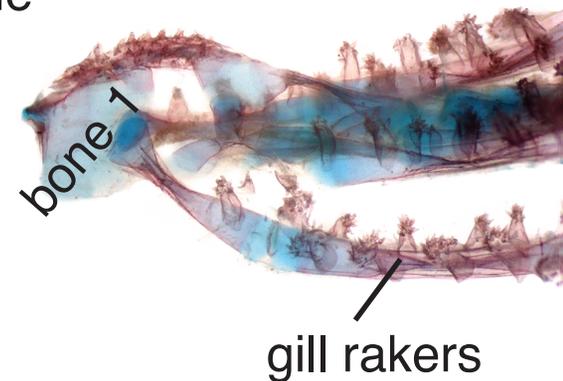
Transitional Whalefish specimens from museum collection; individual fish represent very small specimens of their particular species (i.e. the middle developmental stages of growth from larvae to adult).



**SPECIMEN 3:
YOUNG WHALEFISH**



no tongue



**SPECIMEN 4:
YOUNG WHALEFISH**