

BIOLOGY 306 COMPARATIVE VERTEBRATE ANATOMY

LAB # 4

Skeletal Systems: Shark, Fish, Frog

Quiz: Figs. 16.20B, 16.21, & 16.22; pp. 139-140.

I. ANATOMY OF THE DOGFISH SHARK: SKELETAL SYSTEM, CHAPTER 16. pp. 129-140.

1. We are only going to examine the splanchnocranium (visceral arches) of the shark.

Learn all of the labeled structures on Figures 16.10, 16.11, and 16.12, pp 133 – 134.

II. SKELETAL SYSTEM: Class Actinopterygii - Use diagrams handed out in lab.

A. Subclass Holostei

1. Amia (Bowfin): Skull

Examine skulls of Amia and identify all bones listed on the appropriate skeletal diagrams. OMIT coronoids on lower jaw.

2. Lepisosteus (Gar): Skull

Examine skulls of Lepisosteus and identify all bones listed on the appropriate skeletal diagrams.

B. Subclass Teleostei:

1. Perca (Perch): Skull and postcranial skeleton diagram.

Examine the three articulated skeletons and perch skulls and find all bones listed.

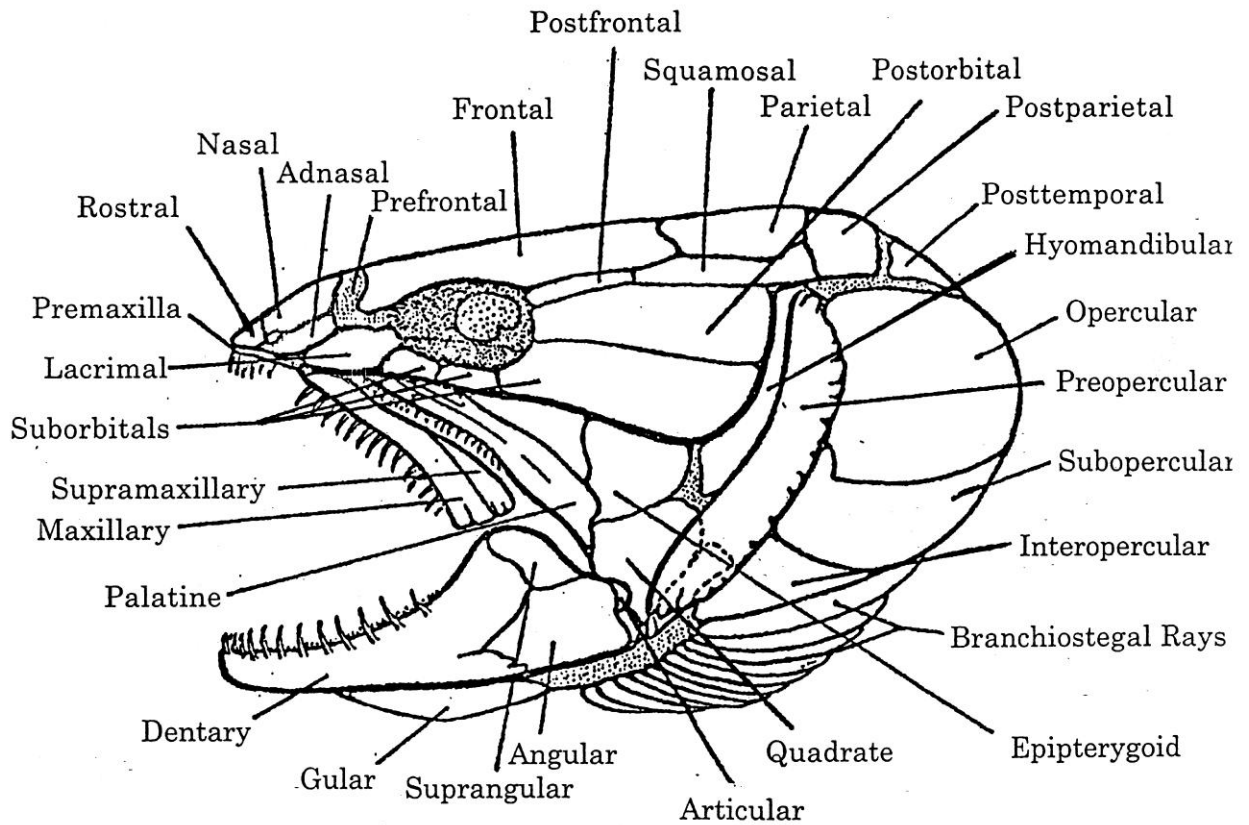
III. SKELETAL SYSTEM: Class Amphibia

A. Order Anura

1. Rana (Bullfrog): Skull and postcranial skeleton

Examine specimens. Learn all bones listed on handout. OMIT hyoid apparatus.

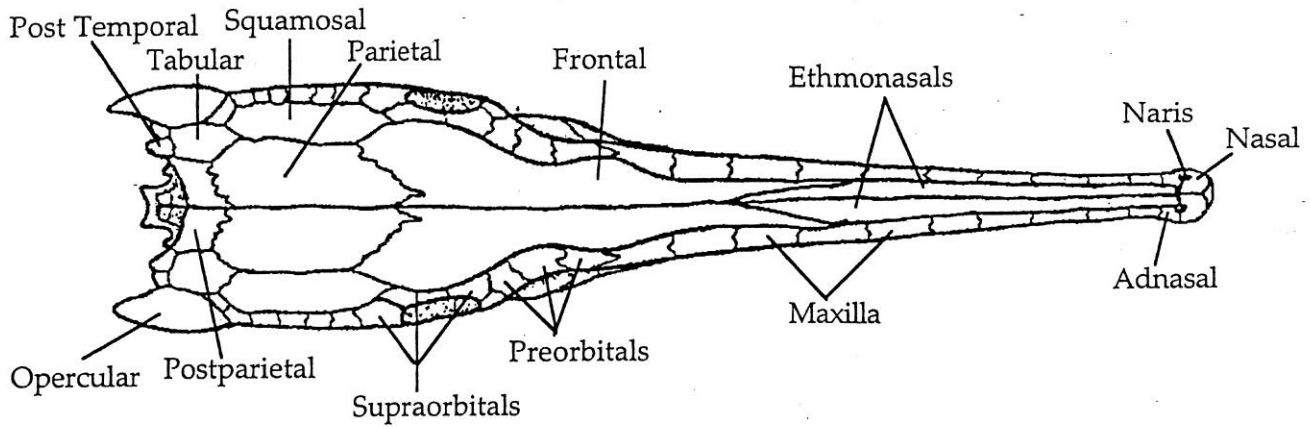
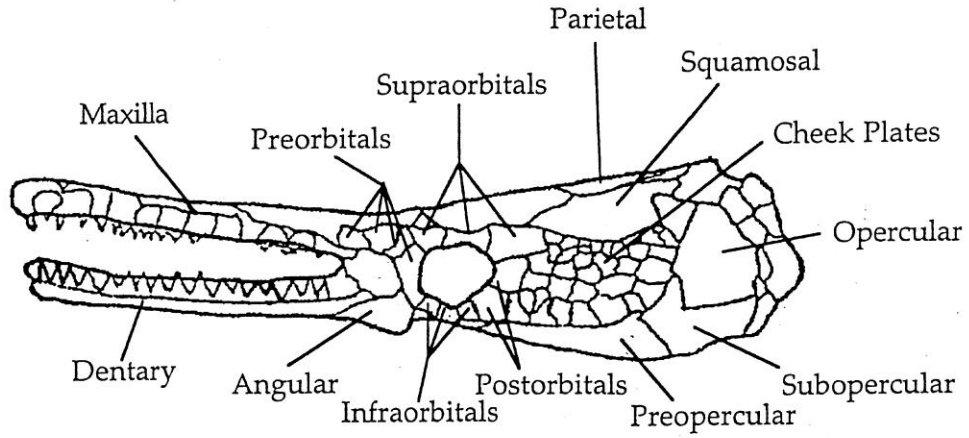
Bowfin (*Amia calva*)



Lateral View

# Gar (*Lepisosteus osseus*)

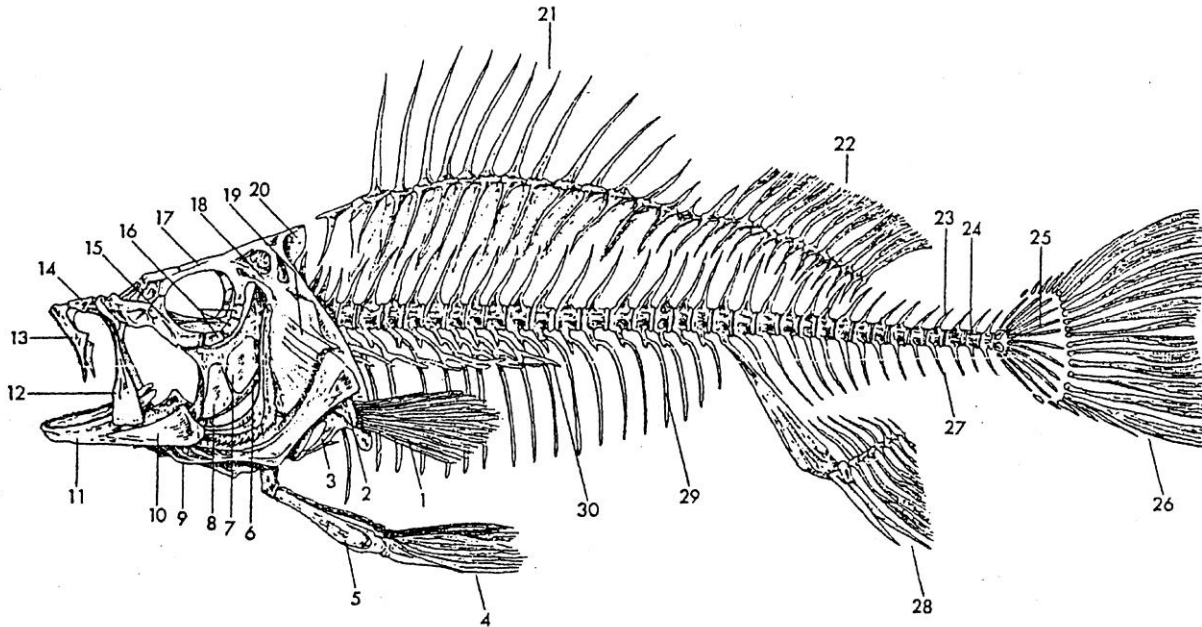
Lateral View



Dorsal View

# PERCH ANATOMY 3.

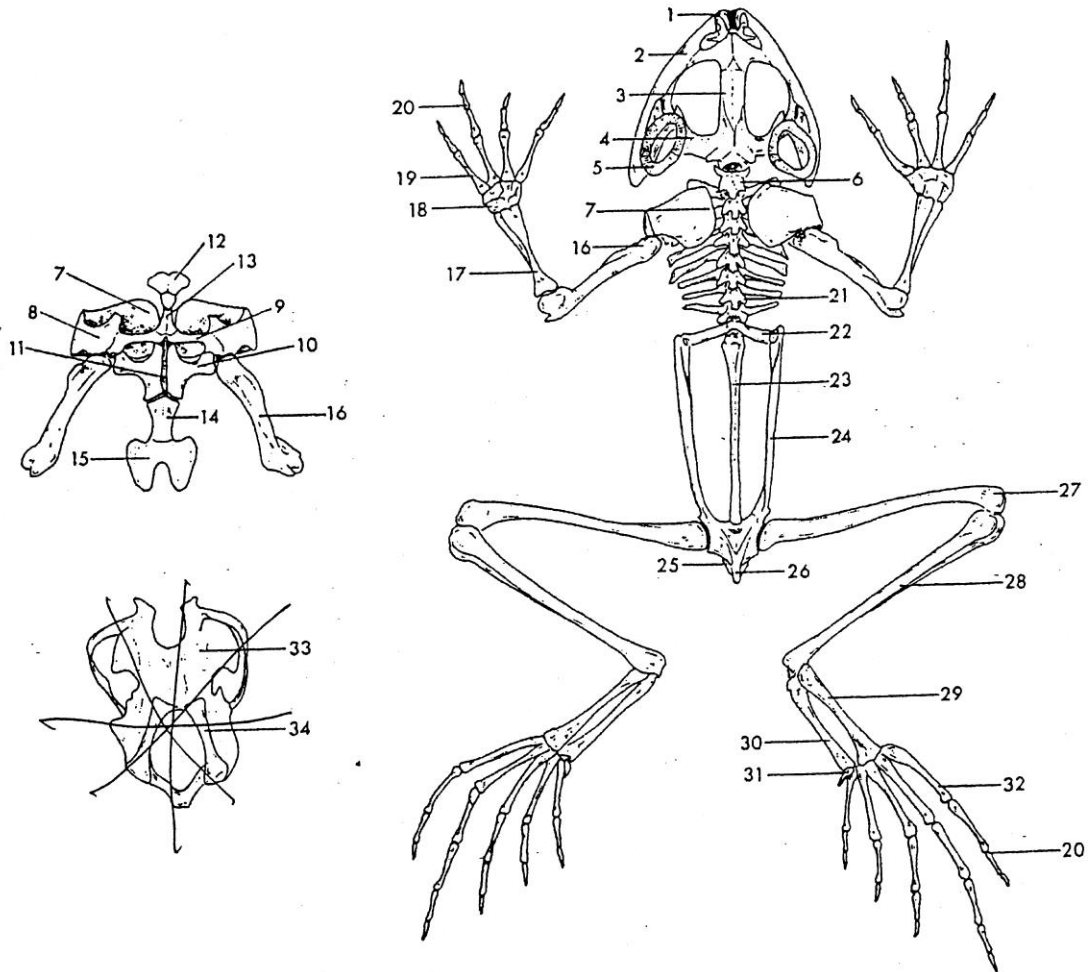
## Skeleton



- |                        |                                     |
|------------------------|-------------------------------------|
| 1. Pectoral fin        | 16. Orbitals                        |
| 2. Scapula             | 17. Frontal                         |
| 3. Coracoid            | 18. Parietal                        |
| 4. Pelvic fin          | 19. Operculum                       |
| 5. Basipterygium       | 20. Supraoccipital                  |
| 6. Symplectic          | <del>21. Anterior dorsal fin</del>  |
| 7. Metapterygoid       | <del>22. Posterior dorsal fin</del> |
| 8. Quadrate            | 23. Neural spine                    |
| 9. Branchiostegal rays | 24. Centrum                         |
| 10. Articular          | 25. Hypural                         |
| 11. Dentary            | 26. Caudal fin                      |
| 12. Maxilla            | 27. Haemal spine                    |
| 13. Premaxilla         | 28. Anal fin                        |
| 14. Nasal              | 29. Rib                             |
| 15. Lacrimal           | 30. Epipleural                      |

# FROG ANATOMY 1.

## Skeleton



- |                      |                     |                            |
|----------------------|---------------------|----------------------------|
| 1. Premaxilla        | 12. Episternum      | 24. Ilium                  |
| 2. Maxilla           | 13. Omosternum      | 25. Pubis                  |
| 3. Frontoparietal    | 14. Mesosternum     | 26. Ischium                |
| 4. Squamosal         | 15. Xiphisternum    | 27. Femur                  |
| 5. Tympanic ring     | 16. Humerus         | 28. Tibiofibula            |
| 6. Cervical vertebra | 17. Radio-ulna      | 29. Calcaneum              |
| 7. Suprascapula      | 18. Carpals         | 30. Astragalus             |
| 8. Scapula           | 19. Metacarpals     | 31. Sesamoid               |
| 9. Clavicle          | 20. Phalanges       | 32. Metatarsals            |
| 10. Coracoid         | 21. Vertebra        | <del>33. Hyoid plate</del> |
| 11. Epicoracoid      | 22. Sacral vertebra | <del>34. Hyoid horn</del>  |
|                      | 23. Urostyle        |                            |