

BIODIVERSITY V AND VI: DERIVED ACANTHOPTERYGIAN AND  
SARCOPTERYGIAN FISHES

Subclass **Actinopterygii**

Division **Teleostei**

Subdivision **Euteleostei**

Superorder **Acanthopterygii**

Series **Percomorpha**

Order **Scorpaeniformes**

Order *weakly* united by:

- Presence of **suborbital stay**, a posterior extension of the third infraorbital bone.
- Head and body **tend to be spiny or have bony plates**.
- **Pectoral fin usually rounded, with membranes between lower rays often incised**.
- **Caudal fin usually rounded** (sometimes truncate).

This order consists of 26 families, 279 genera, and ~1,477 species: Dactylopteridae (flying gurnards, 7 spp.), Scorpaenidae (scorpionfishes and rockfishes, 418 spp.), Caracanthidae (orbicular velvetfishes, 4 spp.), Aploactinidae (velvetfishes, 38 spp.), Pataecidae (Australian prowlfishes, 3 spp.), Gnathanacanthidae (red velvetfishes, 1 sp.), Congiopodidae (racehorses, 15 spp.), Triglidae (searobins, 105 spp.), Bembridae (deepwater flatheads, 10 spp.), Platycephalidae (flatheads, 65 spp.), Hoplichthyidae (ghost flatheads, 10 spp.), Anoplopomatidae (sablefishes, 2 spp.), Hexagrammidae (greenlings, 12 spp.), Normanichthyidae (normanichthyids, 1 spp.), Rhamphocottidae (grunt sculpins, 1 sp.), Ereuniidae (deepwater sculpins, 3 spp.), Cottidae (sculpins, 275 spp.), Comephoridae (Baikal oilfishes, 2 spp.), Abyssocottidae (deepwater Baikal sculpins, 22 spp.), Hemitriptidae (searavens, 11 spp.), Agonidae (poachers, 47 spp.), Psychrolutidae (fathead sculpins, 35 spp.), Bathylutichthyidae (Antarctic sculpins, 1 sp.), Cyclopteridae (lumpfishes, 28 spp.), Liparidae (snailfishes, 334 spp.).

- Freshwater and marine fishes, found on northern hemisphere continents and in all oceans.

Order **Perciformes**

- **Monophyly of group questionable**.
- Order **weakly united by the derived fish condition**, although there are many exceptions.

This order consists of 20 suborders (listed here), 160 families, 1,539 genera, and 10,033+ species: Percoidei (groupers, croakers, perches, jacks, butterfly fishes, etc., 3,176 spp.), Elasmatoidei (pygmy sunfishes, 6 spp.), Labroidei (cichlids, wrasses, surf perches, damselfishes, parrotfishes, 2,274 spp.), Zoarcoidei (ronquils, eelpouts, pricklebacks, gunnels, wolffishes, 340 spp.), Notothenioidei (icefishes, 125 spp.), Trachinoidei (swallowers, sandfishes, sand lances, stargazers, 237 spp.), Pholidichthyoidei (convict blennies, 2 spp.), Blennioidei (blennies, 818+ spp.), Icosteidei (ragfish, 1 sp.), Gobiesocioidei (clingfishes, 140 spp.), Callionymoidei (dragonets, 194 spp.), Gobioidae (gobies, 2,211 spp.), Acanthuroidei (rabbitfishes, surgeonfishes, 129 spp.), Scombroidei (longfin escolar, 1 sp.), Scombroidei (barracudas, snake mackerels, mackerels, tunas, billfishes, 147 spp.), Stromateoidei (medusafish, drifttails, butterflyfish, 70 spp.), Anabantoidae (gouramies, 120 spp.), Channoidei (snakeheads, 29 spp.), Caproidei (boarfish, 10 spp.).

- Freshwater and marine fishes, found worldwide in almost every imaginable aquatic habitat.

#### Order **Pleuronectiformes**

Order united by:

- **Adults not bilaterally symmetrical** (one eye migrates to the other side of cranium).
- **Dorsal fin extending forward to lie above the cranium.**
- The presence of a **recessus orbitalis**, an accessory organ allowing for protrusion of the eyes above the body to maintain vision while buried in the substrate.

This order consists of 14 families, 134 genera, and 678 spp: Psettodidae (spiny turbot, 3 spp.), Citharidae (largescale flounders, 6 spp.), Scophthalmidae (turbot, 8 spp.), Paralichthyidae (sand flounders, 105 spp.), Pleuronectidae (righteye flounders, 60 spp.), Bothidae (lefteye flounders, 140 spp.), Paralichthodidae (measles flounders, 1 sp.), Poecilopsettidae (bigeye flounder, 20 spp.), Rhombosoleidae (19 spp.), Achiropsettidae (southern flounders, 6 spp.), Samaridae (crested flounders, 20 spp.), Achiridae (American soles, 33 spp.), Soleidae (soles, 130 spp.), Cynoglossidae (tonguefishes, 127 spp.).

- Mostly marine, with a worldwide distribution.

#### Order **Tetraodontiformes**

Order united by:

- **Reduction or loss of multiple skull bones.**
- **Scales usually modified as spines, shields, or plates.**

This order consists of nine families, 101 genera, and 357 species: Tricanthodidae (spikefishes, 21 spp.), Triacanthidae (triplespines, 7 spp.), Balistidae (triggerfishes, 40 spp.), Monacanthidae (filefishes, 102 spp.), Ostraciidae (boxfishes, cowfishes, trunkfishes, 33 spp.), Triodontidae (threetooth puffers, 1 sp.), Tetraodontidae (puffers, 130 spp.).

- spp.), Diodontidae (porcupinefishes, 19 spp.), Molidae (molas, 4 spp.).
- Freshwater and marine, found in tropical, subtropical, and in few cases, temperate waters of the world.

## Subclass **Sarcopterygii**

### Infraclass **Ceolocanthomorpha**

#### Order **Coelocanthiformes**

Family Latimeridae

### Infraclass **Dipnoi**

#### Order **Ceratodontiformes**

Family Certadontidae (Australian lungfish, 1 species)

#### Order **Lepidosireniformes**

Family Lepidoceratidae (South American lungfish, 1 species)

Family Protopteridae (African lungfishes, 4 species)

### Infraclass **Tetrapoda** (amphibians, reptiles, birds, and mammals)