

## Chapter 33 Invertebrates

### Lecture Outline

#### Overview: Life Without a Backbone

- **Invertebrates**—animals without a backbone—account for 95% of known animal species and all but one of the roughly 35 animal phyla that have been described.
  - More than a million extant species of animals are known, and at least as many more will probably be identified by future biologists.
- Invertebrates inhabit nearly all environments on Earth, from the scalding water of deep-sea hydrothermal vents to the rocky, frozen ground of Antarctica.

#### Concept 33.1 Sponges are sessile and have a porous body and choanocytes

- Sponges (phylum Porifera) are so sedentary that they were mistaken for plants by the early Greeks.
- Living in freshwater and marine environments, sponges are **suspension feeders**.
- The body of a simple sponge resembles a sac perforated with holes.
  - Water is drawn through the pores into a central cavity, the **spongocoel**, and flows out through a larger opening, the **osculum**.
  - More complex sponges have folded body walls, and many contain branched water canals and several oscula.
- Sponges range in height from about a few mm to 2 m and most are marine.
  - About 100 species live in fresh water.
- Unlike eumetazoa, sponges lack true tissues, groups of similar cells that form a functional unit.
- The germ layers of sponges are loose federations of cells, which are not really tissues because the cells are relatively unspecialized.
  - The sponge body does contain different cell types.
- Sponges collect food particles from water passing through food-trapping equipment.
  - **Flagellated choanocytes**, or collar cells, lining the spongocoel (internal water chambers) create a flow of water

# Chapter 33 Invertebrates Lecture Outline Overview Life

**J Rink**



### Chapter 33 Invertebrates Lecture Outline Overview Life:

**General Zoology** Stephen A. Miller, 2001-05-25 Provides exercises and experiences that should help students understand the general principles that unite animal biology appreciate the diversity found in the animal kingdom and understand the evolutionary relationships and become familiar with the structure of vertebrate organ systems

**English Mechanic and Mirror of Science**, 1894 *International Catalogue of Scientific Literature*, 1910 **International Catalogue of Scientific Literature, 1901-1914**, 1910 **Bulletin of the Public Library of the City of Boston** Boston Public Library, 1890 *English Mechanic and Mirror of Science and Art*, 1894 *Journal of Education*, 1892 **The Reference Catalogue of Current Literature**, 1913 *The Zoological Record*, 1994 *Freshwater and Marine Aquarium*, 1991 *House documents*, 1886 *Nature* Sir Norman Lockyer, 1887 *Kingdoms, Empires, and Domains* Mark A. Ragan, 2023 *Kingdoms Empires and Domains* explores the history of the idea that there is more to the living world than plants and animals Progressing chronologically through philosophical religious literary and other pre scientific traditions leading molecular systematist Mark A Ragan traces how transgressive creatures such as sponges corals algae fungi and diverse microscopic beings have been described categorized and understood throughout history The book also explores how the concept of a third kingdom of life evolved within the fields of scientific botany and zoology and continues to evolve up to the present day

**Biological Abstracts**, 1928 **Bulletin** Boston Public Library, 1891 Quarterly accession lists beginning with Apr 1893 the bulletin is limited to subject lists special bibliographies and reprints or facsimiles of original documents prints and manuscripts in the Library the accessions being recorded in a separate classified list Jan Apr 1893 a weekly bulletin Apr 1893 Apr 1894 as well as a classified list of later accessions in the last number published of the bulletin itself Jan 1896 **Subject Catalog** Library of Congress, 1980 *Nature*, 1887 *Subject Catalog, 1980* Library of Congress, 1980 *Report of the National Museum* United States National Museum, 1886 **Annual Report of the Board of Regents of the Smithsonian Institution** Smithsonian Institution, 1886

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