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- 2  Figure 33.2 Sponges
- 3  **Sponge--Porifera**
 - Feeding Mechanisms
 - Structure
- 4  **Sponge Filter Feeding**
 - Current created by choanocytes
 - Pump 10x body volume every hour
- 5  **Sponge Expt.**
- 6  **Growing into new sponges**
- 7  **New Sponges**
- 8  **Sponge Reproduction**
 - Asexual and Sexual
 - Broadcast Spawning (sperm only)
 - Eggs remain in sponge for fertilization
- 9  **Sponge Variety: Elephant Ear and Barrel**
- 10  **Radial Symmetry**
- 11  **Phylum Cnidaria, Jellyfish and Sea Anemones**
- 12  Figure 33.4 Polyp and medusa forms of cnidarians
- 13  **Feeding in Jellies**
- 14  Figure 33.4bx Jelly medusa
- 15  **Top and Bottom**
- 16  A cnidocyte of a hydra
- 17  Figure 33.7 The life cycle of the hydrozoan *Obelia* (Layer 1)
- 18  Figure 33.7 The life cycle of the hydrozoan *Obelia* (Layer 2)
- 19  Figure 33.7 The life cycle of the hydrozoan *Obelia* (Layer 3)
- 20  **By-the-wind Sailor**
 - Colony of polyps
 - Gastrozooids: feeding polyps
 - Gonozooids: reproductive polyps (spawn tiny medusa)
- 21  **Coral Spawning**
 - Star Coral spawn together
 - Male secretes sperm
 - Egg secretion by female
- 22  **Brain Coral**

- 23  **Bilateral Symmetry**
- 24  **Segmented Worms
(Phylum Annelida)**
- 25  **Polychaetes: Marine Worms**
 - Closed Circulatory System
 - Gills on parapodia
 - 10,000 species
- 26  **Feather Duster Worms**
 - Marine Polychaetes
 - Tentacles with cilia to filter food
 - Tubes made of mucous, protein, sand grains, etc
- 27  **Bearded Fireworm**
 - Polychaete worm
 - Bristles on sides--parapodia--can penetrate skin
- 28  **Phylum Mollusca, soft bodies**
- 29  **Snail Body Plan**
 - Note bilateral symmetry
 - Operculum
 - Complete digestive tract
- 30  **Nudibranch**
Shell-less snails
 - Radula for feeding
 - Spines are extensions of gut
 - Defense adaptation

- 31  **Nudibranch**
- 32  **Spanish Shawl Nudibranchs**
- 33  **Nudibranch**
 - Cerata
 - Use of anemone nematocysts
- 34  **Bivalves**
 - No head, no radula
 - Variety of life styles

- Feed and respire through siphons
- 35  **Sea Scallop**
 - Over 100 blue eyes
 - Locomotion
- 36  **Cephalopod**
- 37  **Cephalopod**
- 38  **Octopus**
- 39  **Octopus Tentacles**
- 40  **Octopus**
- 41  **Arthropods**
- 42  **Arthropod Body Plan**
 - Most numerous, most diverse, most successful
 - exoskeleton
- 43  **Arthropod Development**
- 44  **Arthropod Development**
- 45  **Barnacles**
- 46  **Acorn Barnacle**
- 47  **Gooseneck Barnacles**
- 48  **Barnacle**
 - Where are they found?
 - How do they attach?
- 49  **Barnacle Feeding**
- 50  **Barnacle Development**
- 51 
- 52  **Crab Sex**
- 53 
- 54 
- 55  **Kelp Crabs**
- 56  **Echinoderm Diversity**

- 57  **Sea Cucumber**
 - Tentacles are modified tube feet
 - Interesting defense mechanisms
- 58  **Echinoderm body**
- 59  **Echinoderm**
- 60  **Echinoderm Anatomy**
- 61 
- 62  **Sea Star tube Feet**
- 63  **Seastar Regeneration**
- 64  **Sunflower Star**
- 65  **Batstar**
- 66  **Hemichordates**
 - Dorsal nerve chord

- 67  **Chordates**
 - Lancelot
 - Not a fish, no vertebrae
 - Notochord and gill slits make it a chordate
- 68  **Tunicates**