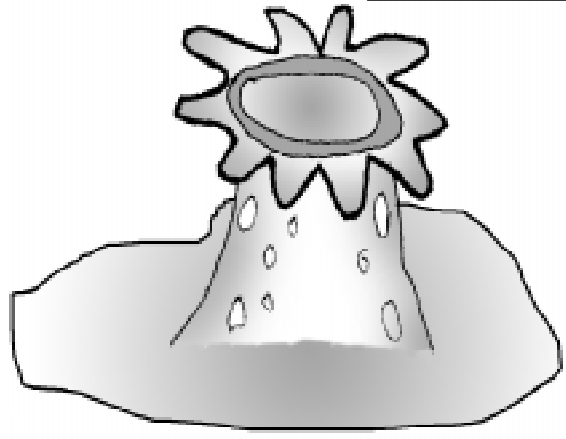
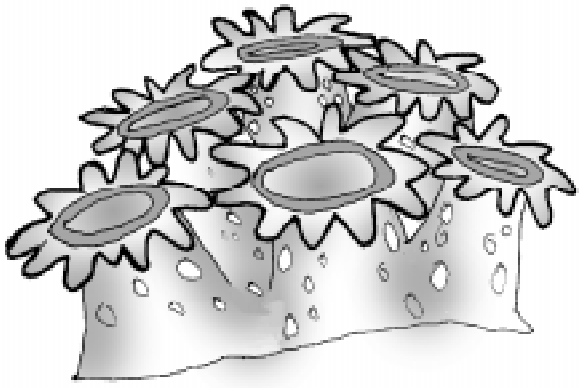
What are coral reefs?

1

Hard corals are tiny animals whose individuals consist of tubular bodies with a mouth ringed by tentacles at one end. These individuals secrete cup-shaped limestone skeletons within and around their bodies. (Soft corals have tiny particles instead so they are not as rigid.)

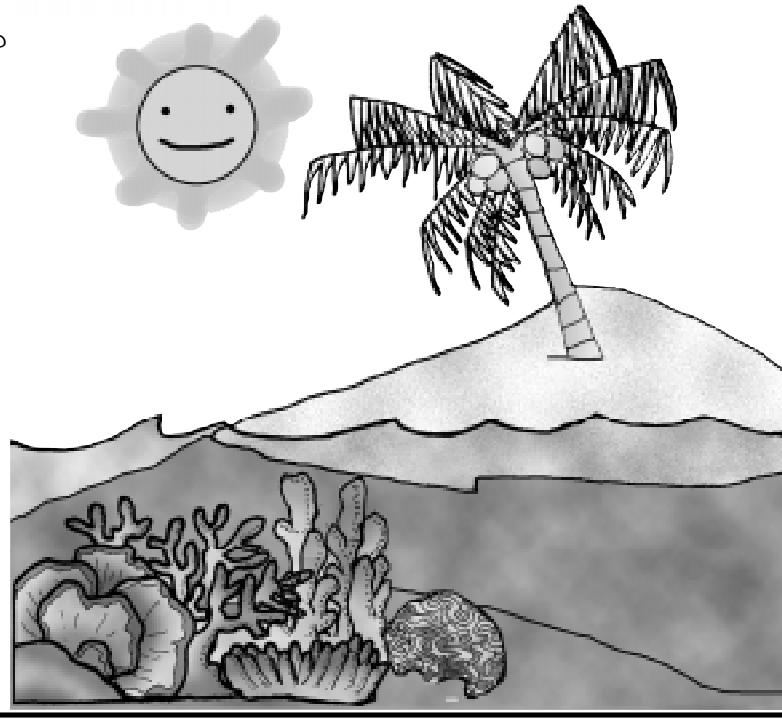




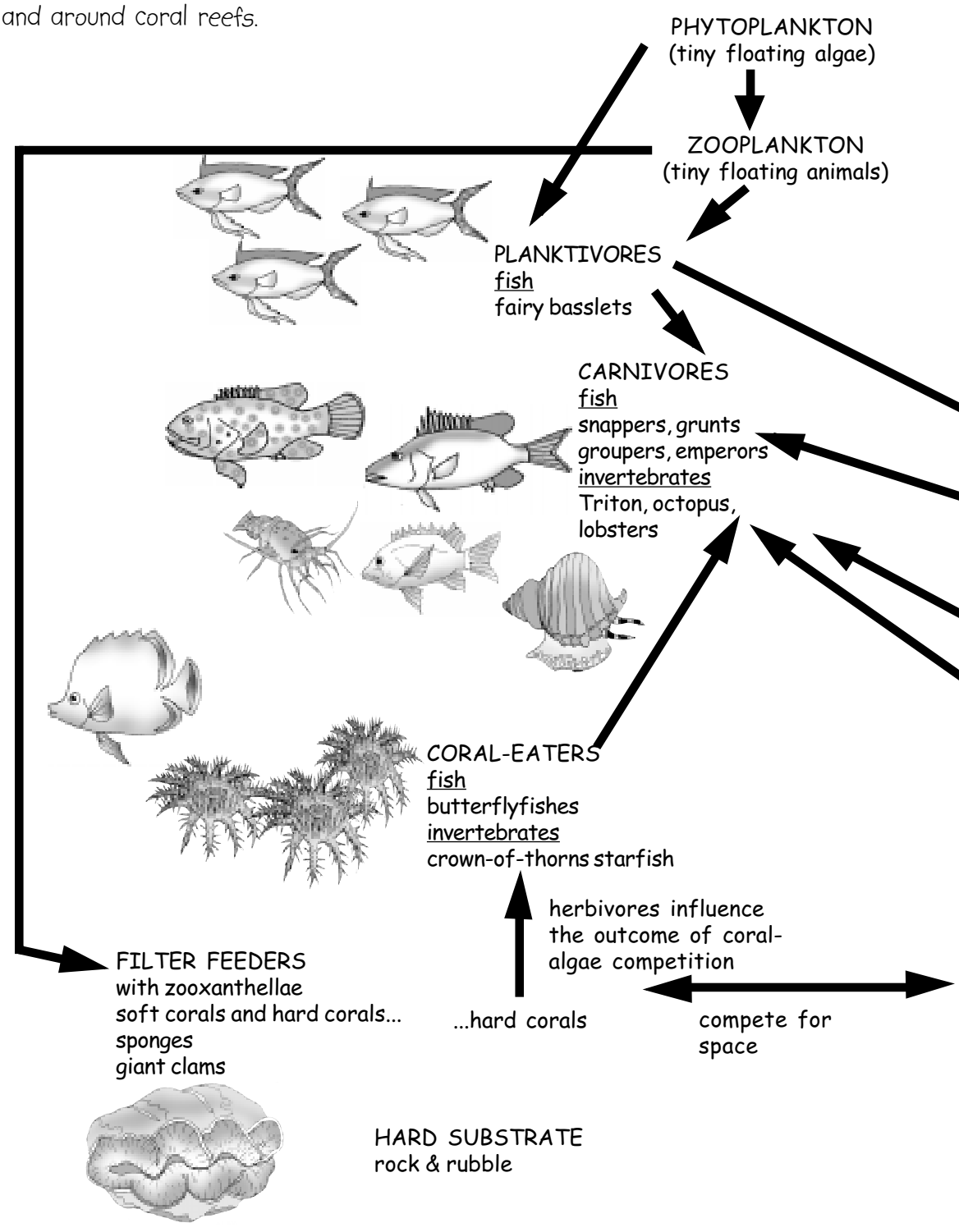
Individuals grow and divide repeatedly, forming colonies. Coralline algae cement these colonies together into hard structures known as coral reefs.

Coral reefs only develop in warm tropical climates. Corals may get suffocated by silt, so they need water movement to continuously wash their surfaces.

In addition, symbiotic algae—which photosynthesize, live within corals, and help them grow faster—also need sunlight.

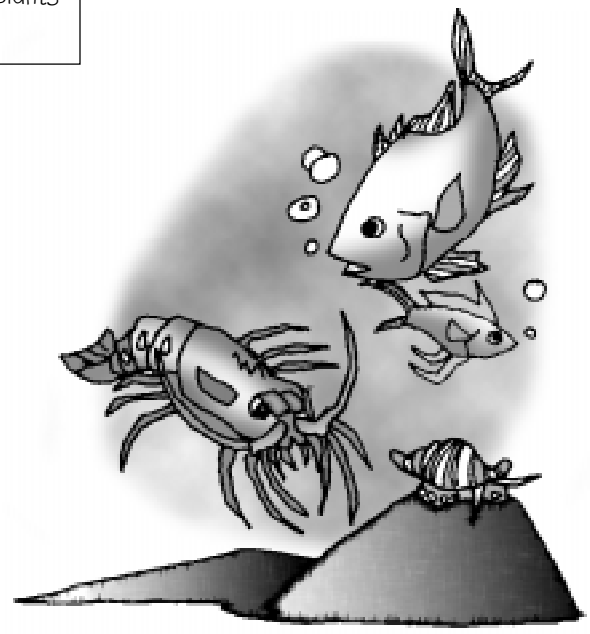


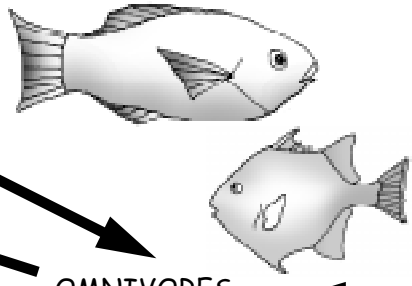
Communities of plants, algae, animals, and other living things interact with each other in and around coral reefs.



Plants, animals, and detritivores are connected to one another by this "chain" of eating and being eaten.

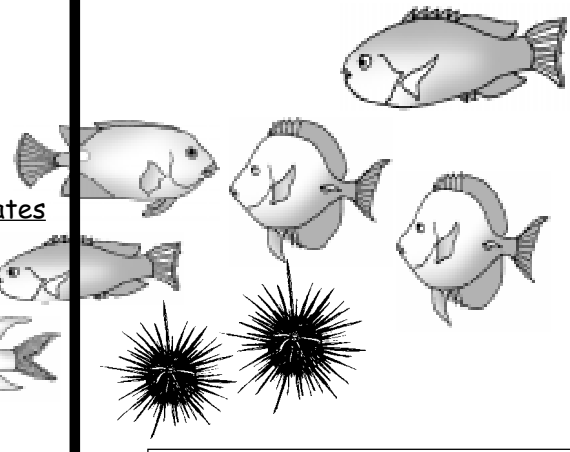
Animals eat either plants and/or other animals.





OMNIVORES
fish
wrasses, triggerfishes
invertebrates
gastropods, worms

HERBIVORES
fish
parrotfishes,
surgeonfishes,
rabbitfishes,
damselfishes



invertebrates
urchins
crabs

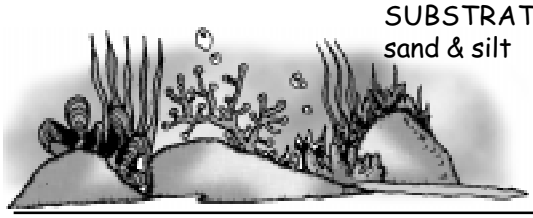
...with algae
seagrasses
DETRITIVORES

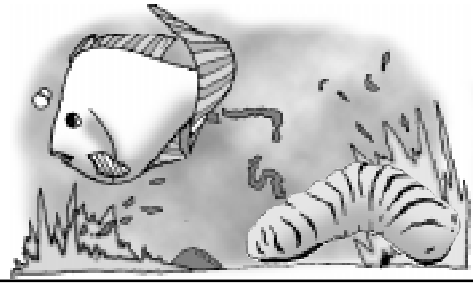
invertebrates
sea cucumbers,
bivalves, sponges

Detritivores break down the wastes, dead parts & bodies of plants, animals, and other living things and make them available as nutrients in the water.

Plants and algae use sunlight, gases, and nutrients in the water as food.

SOFT
SUBSTRATE
sand & silt





Trainer's Tips for Chapters 1 to 4

Key Concepts:

1. Monitoring and evaluation is essential for management to be responsive to the changes in the biophysical and socioeconomic realities as an area is being managed.
2. Observations must be done in places and times that represent the variation in the places and time of interest.
3. Observe those indicators that address what you want to know.
4. The monitoring plan must be feasible.

Though there are many definitions of adaptive management, the basic idea is that management strategies are continuously improved as understanding of the system being managed improves.

It is very important that the indicators you decide to monitor are relevant to what the community wants to know. If current use is sustainable under the present management strategy, your indicators must either be stable or changing towards the direction desired (e.g. fish catch is stable or increasing). If you are evaluating management, your indicators must potentially be responsive to management.

The reef monitoring methods described here generally collect the simplest type of data with which changes can be detected. More detailed data may be collected for indicators of particular interest. Tables in the appendix outline how these methods may collect more detailed information as well as what levels of detail are collected by other monitoring systems.

If the organisms you are censusing have:

- greater movement ranges, you'll need to have your samples more spread apart
- higher abundances, you'll need lesser samples
- clustered distributions, you'll need more samples

Review Questions

1. What use is monitoring to management?
2. What major components do we monitor?
3. Why do we observe outside protected areas too? Why do we observe at different times?
4. Why must we take several observations at each site at each time?
5. What does "representative" sampling mean?

"Representative" means a part whose characteristics are similar to the whole.