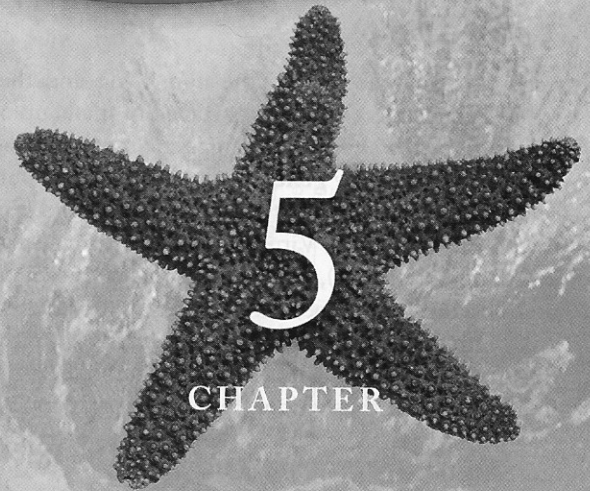


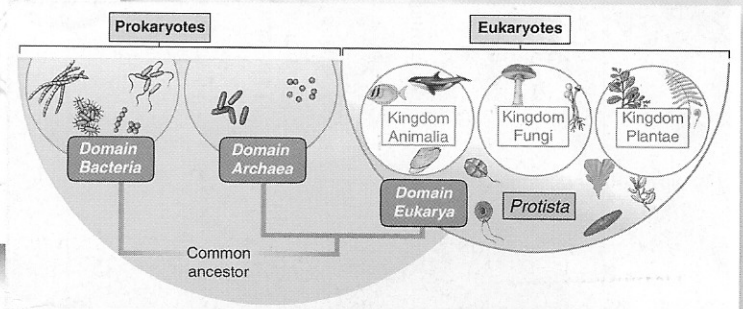
## Part Two

### The Organisms of the Sea



CHAPTER

## The Microbial World



*Halomonas titanicae*, a rust-eating bacterium from the wreck of the *Titanic*.

This chapter, the first in our survey of life in the ocean, is devoted to marine microorganisms, which are easily the most abundant forms of marine life. Microorganisms live everywhere in the ocean, from the deepest trenches to the highest tide pools. The microbial world includes an incredibly diverse assortment of organisms, and new microorganisms are discovered all the time. Except for being small, the various groups of microorganisms discussed in this chapter have little in common. All three biological domains, the most basic divisions of life (see “The Tree of Life,” p. 82), include microorganisms. The diversity of the microbial world can be bewildering even to biologists. Indeed, much of the scientific debate about how to group organisms into kingdoms within domains centers on microorganisms (see “A Fourth Domain of the Tree of Life?,” p. 93).

Though marine microorganisms include some of the smallest and structurally simplest organisms, they have played critical roles

in the evolution of life on our planet. Indeed, without microorganisms there would be no life on Earth. Not only did life as we know it today evolve from microorganisms, but without them the planet could not support other forms of life.

Microorganisms are the most important **primary producers** in many marine environments, and directly or indirectly they feed most marine animals. Some microorganisms make essential nutrients available to primary producers, either for the first time or by recycling them. Others swim about in the water to ingest

**Primary Producers** Organisms that manufacture organic matter from carbon dioxide (CO<sub>2</sub>), usually by photosynthesis.  
• Chapter 4, p. 68