



Figure 11.1 The fluid essential to all life has a beauty of its own. It also helps support the weight of this swimmer. (credit: Terren, Wikimedia Commons)

Chapter Outline

11.1 What Is a Fluid?

11.2 Density

11.3 Pressure

11.4 Variation of Pressure with Depth in a Fluid

11.5 Pascal's Principle

11.6 Gauge Pressure, Absolute Pressure, and Pressure Measurement

11.7 Archimedes' Principle

11.8 Cohesion and Adhesion in Liquids: Surface Tension and Capillary Action

11.9 Pressures in the Body

Introduction to Fluid Statics

Much of what we value in life is fluid: a breath of fresh winter air; the hot blue flame in our gas cooker; the water we drink, swim in, and bathe in; the blood in our veins. What exactly is a fluid? Can we understand fluids with the laws already presented, or will new laws emerge from their study? The physical characteristics of static or stationary fluids and some of the laws that govern their behavior are the topics of this chapter. Fluid Dynamics and Its Biological and Medical Applications explores aspects of fluid flow.

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