

Based on Mader, Sylvia S. 1996. *Biology* - 5th Ed. WCB
and
Cox, G.W. 1997. *Conservation Biology* - 2nd ed. WCB
and
Levine, J.S. and K.R. Miller. 1994. *Biology: Discovering Life*. D.C. Heath

Oceans

Reading: Chapters 17, 18 in Cox – Chapter 36 in Levine and Miller

Ocean ecosystems - covered previously in wetland lecture.
Coral Reefs - special lecture to follow.

I. Gas Exchange

A. Plants - take in CO₂ at stomata

1. concurrent loss of water
2. stomata close when water is scarce

B. Animals - take in oxygen, release CO₂

1. need for O₂ proportional to:

- a) volume
- b) metabolism
- c) activity

2. must have sufficient surface area to allow oxygen in

- a) not a problem for small organisms
- b) larger organisms:
 - (1) evaginations (gills)
 - (2) invaginations (lungs, tracheae)
 - (3) ventilation
 - (a) breathing
 - (b) ram ventilation

c) special mechanisms:

- (1) **countercurrent flow (Figure 36.4):**



