

Calculation of Air Consumption

To convert depth to atmospheres:

$$\text{Depth} / \text{atm's} + 1\text{atm} = \text{ATA's}$$

Example:

$$66\text{ft.} / 33 = 2\text{atm's (gauge)} (+) 1(\text{air}) = 3\text{ATA's}$$

To calculate your Depth Consumption Rate:

$$\text{PSI used} / \text{Time} = \text{Depth Consumption Rate (DCR)}$$

Example:

$$225\text{psi} / 3 \text{ min.} = 75\text{psi/min (DCR)}$$

To calculate Surface Air Consumption rate:

$$\text{DCR} / \text{atm's} = \text{Surface Air Consumption rate. (SAC)}$$

Example:

$$75\text{psi} / 3\text{atm} = 25\text{psi/min (SAC)}$$

To Calculate air use for a future dive:

$$\text{Sac Rate (X) ATA's} = \text{DCR then}$$

$$\text{Pressure available} / \text{DCR} = \text{Est. bottom time.}$$

Example:

$$25\text{psi/min (SAC)} \times 3\text{ATA's} = 75\text{psi/min. (DCR)}$$

$$3000\text{psi} / 75\text{psi} = 40\text{min. Bottom time estimated.}$$

*There are many variables, which could and probably will effect the accuracy of this estimate.

ALWAYS CHECK YOUR PRESSURE GAUGE!

Calculating Atmospheres from depth:

- What is the number of atmospheres absolute (ATA's) if a diver is in 132ft. of water. _____
- What number of ATA's is 80ft.? _____
- What number ATA's is if a diver is in 29ft.? _____

Calculating DCR

- A diver is in 66ft of water and used 1800psi in 20minutes. What is his DCR? _____
- A diver is in 132ft. of water and uses 2400psi in 12minutes. What is his DCR? _____
- A diver is in 80ft. of water & uses 1600psi of air in 15 minutes. What is her DCR? _____

Air Consumption Problems

- What is SAC rate for a diver who uses 2400psi of air at 99ft, in 20min.? _____
- What is the SAC rate for a diver who uses 1200psi in 10 min. at 132ft.? _____
- What is the SAC rate for a diver who uses 800psi in 40min. at 33ft.? _____