

VOLUMETRIC GAS USAGE OF THE BASIC-SPORT SCUBA  
DIVER IN WATER TEMPERATURES OF 18.3, 22.2,  
25.6 and 29.4 DEGREES CELSIUS

by

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Dedicated To My Parents

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## CHAPTER 1

### INTRODUCTION

As each year goes by, the number of people receiving diving certifications surpasses the previous year. In the five year period from 1970 through 1974, close to one million Basic Scuba Divers have been certified by the four national certifying organizations <sup>1</sup>(NASDS, NAUI, PADI, YMCA). With this increase, and the already huge diving population, over the two million mark since 1950, it is important to stress safety and dive planning.

New opportunities await the newly certified diver - Underwater Photography, Wrecking Diving, Ice Diving, Cave and Night Diving, just to name a few. Before a diver can enter any of these areas he must know his limitations and how to plan his dive. Dive Planning can be learned through any diving course; limitations are only learned through experience and diving. The most important limitation any diver faces is how long he can stay down. This question can only be answered if the diver knows his depth and, more important, his minute volume, more commonly referred to as breathing rate. If the diver does not accurately know his breathing rate, unexpected depletion of his air supply could occur, resulting in possible panic, free ascent or emergency swimming ascent. All three are capable of causing death by drowning, air embolism, or both.

The length of time an individual can stay down is commonly

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<sup>1</sup>See definitions for complete names