

possible if the surface interval is less than five minutes and the depth less than 50 fsw (Edel 1969; Weeks 1972; Walden and Rainnie 1971). Other systems are designed to decompress divers in the habitat on the bottom and then have the divers swim to the surface upon completion of decompression (Wicklund 1973). In other cases, the habitat can be raised to the surface and towed to a shore base where decompression is completed and standby facilities may be available (Koblick et al. 1974). These procedures are all discussed in detail in Miller et al. (1976).

In deep diving systems, the divers usually are transferred to a surface decompression chamber in a personnel transfer capsule that remains at the storage depth pressure. Decompression is then accomplished in accordance with standard procedures for the depth, duration, and breathing gas.

The following paragraphs contain decompression procedures and tables for saturation dives in which air and or normoxic mixtures of nitrogen and oxygen are used as the breathing gas. The decompression tables are based on computer models, hyperbaric chamber experiments, and open-sea saturation diving experience.

Descending excursions will prejudice a subsequent saturation decompression. It is necessary, therefore, to delay the start of saturation decompression after the last descending excursion, no matter which decompression schedule is used.

Table 17.8 shows the required time intervals between the final descending excursion and the start of decompression. Another approach that may be quicker than waiting

long excursions for the times shown in Table 17.8 would be to compress the habitat to the depth of the last excursion and to decompress from that depth. This procedure provides the same margin of safety as using Table 17.8.

**Example:**

The storage depth is 45 fsw (14 msw) and the diver makes a final descending excursion to a depth of 110 fsw (34 msw) for three hours. Because this excursion is 65 fsw (20 msw) below the storage depth for longer than two hours, he has to wait 36 hours before beginning saturation decompression.

Decompression tables and procedures for saturation dives using helium and oxygen are not included in this Manual; the reader is referred to the *U.S. Navy Diving Manual* (1999) for further information on such dives.

**17.6.1 Decompression After Nitrogen-Oxygen or Air Saturation Exposures**

Since the publication of the first edition of this manual in 1975, a significant amount of experience has accumulated in air and nitrogen-oxygen saturation decompression. The procedures described in the following paragraphs are based on or derived from the best accumulated experience available.

*Note:*

Table 17.8 has been revised, should read as follows:

Table 17.8 has been revised, should read as follows: Table 17.9 on various operations. The first, Table 17.9, was used in the NOAA SCORE project. This schedule was developed originally for the NOAA Diving Program and has been used both in the laboratory and in the field (Miller et al. 1976). Table 17.9 was designed for use with air saturation at 60 fsw (18 msw) but has been modified to be consistent with the recommended maximum air saturation depth of 50 fsw (15 msw). See Table 17.13 for summary information about nitrogen-oxygen saturation decompression tables 17.9 through 17.12.

Table 17.10 has been used for over 300 decompressions after saturation in the Hydrolab habitat. On only one occasion has decompression sickness been documented after its use, and on this occasion the incident occurred during flight following saturation. In other instances, precautionary recompression treatment was given to four aquanauts (Miller et al. 1976).

Two additional saturation decompression schedules are shown in Tables 17.11 and 17.12. These tables were contained in the 1975 edition of this manual. In that edition (1975), Table 17.11 (formerly 12-7) was referred to as an "emergency" table and Table 17.12 (formerly Table 12-5) was referred to as a "standard" table. These terms were used deliberately but are now considered to be misleading and have been changed.

Table 17.11 (now referred to as "standard") is appropriate when a more rapid ascent is desired and extensive oxygen breathing is acceptable. Table 17.12 (now referred to as "conservative") is recommended for use when special circumstances suggest that the risk of decompression sickness

**TABLE 17.8**  
**Time Intervals Between Final Descending Excursion and Start of Decompression From Saturation Storage Depth**

Final Descending Excursion		
Excursion Depth (fsw)	Duration of Excursion (hr)	Delay Before Beginning Saturation Decompression (hr)
Any depth	< 1	4
< 50	< 2	4
< 50	2-4	12
< 50	> 4	24
50-100	1-2	16
50-100	> 2	36
> 100	1-2	30
> 100	> 2	48

**This table also applies to excursions requiring decompression; if bends occurred as a result of an excursion, a delay of at least 48 hours is recommended prior to beginning saturation decompression.**