



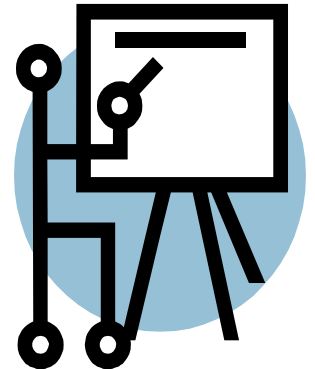
# DIVE TABLES

The format of these tables uses numbers, ranges and procedures developed by DCIEM (now DRDC)

**Warning: because of different individual metabolisms, the use of any dive tables does not guarantee freedom from Decompression Sickness. ACUC assumes no liability. Avoid doing dives where mandatory decompression stops are needed.**

## INSTRUCTIONS AND EXAMPLES

- A “Column” is a vertical series of squares read from top to bottom.
- A “Row” it is a horizontal series of squares read from left to right.
- A “Single” dive is a dive that is done when the diver’s body is clear of excess nitrogen.
- A “Repetitive” (sometimes called “Successive”) dive is a dive done between 15 minutes and from 12 to 18 hours after a previous dive (depending upon the dive).
- A “Continuous” Dive occurs when two dives are separated by an insufficient Surface Interval Time (SIT) to allow entry into Table B (for example, for residual nitrogen groups (RNG) “A” to “F” is less than 15 minutes; for group “G” is less than 30 minutes; for groups “H” and “I” is less than 1 hour, etc.).
- “D / P” means “Depth” (“Profondeur” in French or “Profundidad” in Spanish). For table calculations it is the deepest part of the dive.
- “SIT / TIS” means “Surface Interval Time” (“Temps d’Intervalle de Surface” in French or “Tiempo de Intervalo en Superficie” in Spanish). It is the time that the diver spends out of the water between dives.
- “RD / PR” means “Repetitive Depth” (“Profondeur Répétitive” in French or “Profundidad Repetitiva” in Spanish).
- “F / E / L” means “Free” (“Exempt” in French or “Libre” in Spanish). It indicates that the Nitrogen levels within the diver are low enough that the next dive is not considered to be a Repetitive Dive.



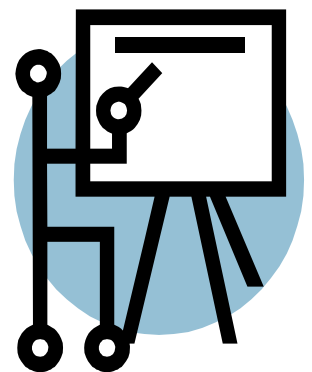
*All dives need decompression, the only difference is if decompression stops are needed or not during the ascent”.  
“Non” decompression diving does not exist*

Please notice the colour coding throughout the tables: Green indicates “safer”; Yellow indicates “caution” and Purple indicates “danger”.

## TABLE A

Table A is used to plan single dives. The purpose of Table A is to obtain a “Residual Nitrogen Group” (RNG) letter. RNG is the amount of Nitrogen remaining in the diver’s tissues, as represented by a letter, from “A” to “L”. Table A will also indicate if safety or decompression stops are required, and if so, how many, at what depth and for how long. Table A is also used for repetitive dives. Following a Repetitive Dive, Table A will also produce a new RNG, once a Total Bottom Time (TBT) has been obtained from Table C.

To use Table A, find the depth of your dive in the left column. Move towards the right in that row until you find your bottom time. “Bottom Time” is measured from when the diver begins his descent until he begins his ascent. If beside your bottom time a number in brackets appears, for example “(1)”, you must make a **mandatory** Decompression Stop. In this example the stop required is at 3m / 10’ for 5 minutes. If you find an “(S)” beside your bottom time, a “Safety Stop” should be done (see decompression codes at the bottom of Table A). Note: ACUC recommends that you do a Safety Stop on ALL no decompression dives. Next, follow down the column where you found the bottom time of your dive. Here you will find a letter (from “A” to “L”). This is the “Residual Nitrogen Group” letter, or RNG.



*Make sure you know and understand the difference between ABT (Actual Bottom Time) and TBT (Total Bottom Time)*

## TABLE B

Table B, also known as the “Surface Interval Group” (SIG) table, is necessary if planning repetitive dives. The purpose of Table B is to take into consideration the time spent resting at the surface and therefore, eliminating nitrogen from a previous dive. The objective of this Table is to obtain a group called the “Surface Interval Group” (SIG), that will be used to calculate repetitive dives.

To use this table, enter Table B on the top row, with the RNG letter that was obtained in Table A. Next, find your Surface Interval range in the left column. Move down the RNG column and to the right from your SIT range, to find an intersection square. This is your SIG (from R1 to R10). If you find the letters “F / E / L”, this means that your body is free of Nitrogen from previous dives, and that this dive is not a repetitive dive and can be calculated as a “Single” first dive. The SIGs “R1” to “R10” give an indication of the quantity of Residual Nitrogen accumulated in your body from previous dives, where “R1” is the smallest quantity and “R10” the largest.

Obviously, the more you rest at the surface the “smaller” your SIG will be.

## TABLE C

Table C indicates the Maximum No Decompression Time (MNDT), as well as the Nitrogen Penalty Times (NPT) for **Repetitive Dives**. This Table has 3 parts: The top row indicates the depth of the repetitive dives (RD / PR); the column to the left indicates the SIG letter obtained from Table B, and the rest of the Table displays the “MNDT” or Maximum No Decompression Times of the repetitive dives (in green and italics), and the “NPT” or Nitrogen Penalty Times (in yellow).

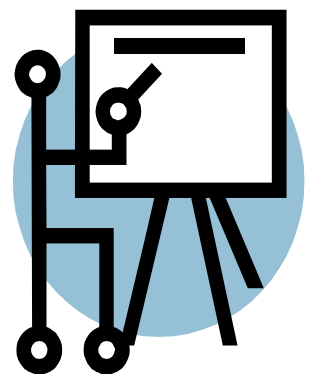
When you add the NPT to the Actual Bottom Time (ABT) - the actual time that you spent underwater - of the repetitive dive, the result will be the Total Bottom Time (TBT), which is a “fictional” time that takes into consideration the amount of accumulated (or residual) nitrogen in your body’s tissues. This TBT will be used in Table A to calculate the new RNG and possible decompression stops of the repetitive dive. The NPT is required if you dive beyond the MNDT and/or if subsequent dives are planned. If you stay within the MNDT and no subsequent dives are planned, you will not really need the NPT, other than to log your dive profile in your log book.

To use this Table, enter Table C in the left column (the one marked SIG). This column contains the SIG letter obtained from Table B. Find your SIG letter and move right across this row. Next enter the top row (the one titled RD/PR). Find the depth of your repetitive dive and move down the column; The SIG row and the Depth column will converge in a square that contains two values. The left value (in green and italics) is the Maximum No Decompression Time (MNDT) in minutes for this dive. The value to the right in yellow is the Nitrogen Penalty Time (NPT) in minutes for this dive. Adding your ABT plus your NPT produces your TBT for this dive ( $ABT + NPT = TBT$ ).

Next, take this TBT (**caution: use the TBT, not the ABT**) and apply it in Table A (see the instructions for Table A). This will tell you the decompression stops that you must do, at what depth and for how long, as well as your new RNG.

## GENERAL RULES

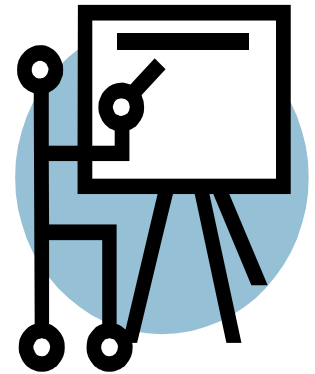
- If the exact value that you look for does not appear (in either dive time or dive depth), always go to the immediately superior value (for example, the depth of 23m / 76’ becomes 24m / 80’).
- Always do the deepest dive first.
- Always measure depth at chest level.
- The minimum time for a Surface Interval is 15 minutes for RNGs “A” to “F” and varying times for “G” to “L”. SITs less than these are considered “Continuous Dives”. We will discuss this further on in this instruction manual.
- The minimum depth that we observe in these Tables is 6m / 20’ and the maximum depth is 42m / 140’. The maximum depth allowed for recreational divers is 40m / 132’
- Take special precautions in cold water or laborious dives; also take into consideration your age and physical shape. If this is your case, give yourself a wider margin (when you calculate the Tables, use a superior depth or a superior bottom time, or both, and in cases of Continuous dives, add your SIT times to the



*Following these Tables, or any others, does not exempt the user from the risk of suffering a decompression accident*

bottom times).

- If you must go to an altitude above 303m / 1,000' (for example, driving over a mountain), make sure that you have reached a SIG of "F/E/L" (Free). Many decompression accidents can occur while going in a car, well after your last dive. Alternatively, you may plan your last dive as if it was an altitude dive (altitude diving is taught in more advanced courses).
- If planning to fly after diving:
  - For single no decompression dives, you must reach, **at least** "F/E/L" (Free) in Table B
  - For all other dives, allow **at least** 24 hours after your last dive before flying.
- When you are at the surface, before, after or between dives, REST, do not do physical exercises.
- Drink plenty of water, before, after and between dives.
- Do not descend faster than 18m / 60' per minute. A slow descent is better and will decrease your chances of getting decompression sickness.
- The ascent rate for these Tables is calculated at 15m / 50' per minute, but an ascent rate between 12m / 40' and 18m / 60' per minute is also permitted.
- Ascend as slowly as possible, especially during the last 6m / 20'.
- For dives deeper than 12m / 40', do a **Safety Stop** for 3 minutes at a depth between 3 and 6 metres (10' and 20'). "Safety" stops are stops that are not mandatory, however they are done for the sake of safety, as the name indicates.
- **Avoid dives where mandatory decompression stops are required.**
- **Because of different individual metabolic rates and other factors, following these Tables, or any other tables, does not exempt the user from the risk of a decompression accident. ACUC assumes no liability.**



*Remember: Whenever possible, avoid dives where mandatory decompression stops are needed*

## EXAMPLES

### 1. Single No Decompression Dive

**Dive to 25m / 82' for 20 minutes**

From Table A: 25m / 82' (27m / 90') for 20 minutes = Residual Nitrogen Group (RNG) "D". No decompression stops are needed but do a Safety Stop.

### 2. Single Decompression Dive

**Dive to 30m / 100' for 20 minutes**

From Table A: 30m / 100' for 20 minutes (21 minutes) = Residual Nitrogen Group (RNG) "E". A Decompression Stop is needed: 10 minutes at 3m / 10'

### 3. Two Repetitive Dives with No Decompression required

**First Dive to 20m / 66' for 20 minutes**

**Surface Interval 1h:30m**

**Second (Repetitive) Dive to 15m / 50' for 40 minutes**

- From Table A: 20m / 66' (21m / 70') for 20 minutes = Residual Nitrogen Group (RNG) "C". A Decompression Stop is not needed, but do a Safety Stop.
- From Table B: Surface Interval as an RNG "C" for 1h:30m = Surface Interval Group (SIG) "R2".
- From Table C: As a SIG "R2", if you want to dive to 15m / 50', the Maximum No Decompression Time (MNDT) is 55 minutes. Since you plan to dive for 40 minutes, you are within the MNDT, and therefore, you do not need to make decompression stops in your second dive, but do a Safety Stop.
- Go to Table A. After concluding your 2nd dive, you will have become an RNG "F". Why?
  - Nitrogen Penalty Time (NPT) for a SIG "R2" is: 20 minutes
  - Actual Bottom Time (ABT) of the 2nd dive is: 40 minutes
  - Therefore, the Total Bottom Time (TBT) is (40 + 20): 60 minutes
  - According to Table A: 15m / 50' for 60 minutes: RNG "F"

#### 4. Two Repetitive Dives with Decompression required

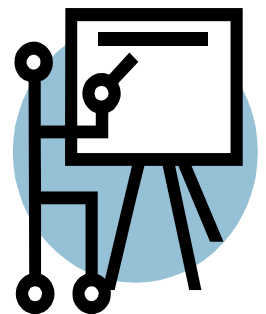
**First Dive to 20m / 66' for 30 minutes**  
**Surface Interval: 1h:30m**  
**Second (Repetitive) Dive to 18m / 60' for 40 minutes**

- From Table A: 20m / 66' (21m / 70') for 30 minutes (35 minutes) = Residual Nitrogen Group (RNG) "E". No decompression stops are needed, but do a Safety Stop.
- From Table B: Surface Interval as an RNG "E" for 1h:30m = Surface Interval Group (SIG) "R4".
- From Table C: As a SIG "R4", if you want to dive to 18m / 60', the MNDT is 29 minutes. Since you want to dive for 40 minutes you are over the MNDT and therefore, you will need Decompression Stop(s) in your second dive.
- From Table C: The Nitrogen Penalty Time (NPT) for a SIG "R4" is 21 minutes; therefore the Total Bottom Time (TBT) will be 61 minutes (ABT + NPT = TBT or 40 minutes + 21 minutes = 61 minutes).
- From Table A: 18m / 60' for 61 minutes (70 minutes), gives you a Decompression Stop of 10 minutes at 3m / 10'. After concluding that dive, What is your new RNG?:
  - From Table A: 18m / 60' for 61 minutes (70 minutes) = RNG "H".

#### 5. Three Repetitive Dives with No Decompression required

**First Dive to 20m / 66' for 25 minutes**  
**Surface Interval: 1h:30m**  
**Second (Repetitive) Dive to 15m / 50' for 40 minutes**  
**Surface Interval: 3h:00m**  
**Third (Repetitive) Dive to 15m / 50' for 30 minutes**

- From Table A: 20m / 66' (21m / 70') for 25 minutes = Residual Nitrogen Group (RNG) "D". No decompression stops are needed, but do a Safety Stop.
- From Table B: Surface Interval as an RNG "D" for 1h:30m = Surface Interval Group (SIG) "R3".
- From Table C: As an SIG "R3", if you want to dive to 15m / 50', the maximum time without decompression is 50 minutes. As the 40 minutes you plan to dive is within the MNDT, you do not need to make decompression stops in your second dive, but do a Safety Stop.
- From Table C: The Nitrogen Penalty Time (NPT) for an SIG "R3" is 25 minutes, therefore, the Total Bottom Time (TBT) will be 65 minutes (ABT + NPT = TBT or 40 minutes + 25 minutes = 65 minutes).
- From Table A: 15m / 50' for 65 minutes (75 minutes) your RNG becomes "G".
- From Table B: Surface Interval as an RNG "G" for 3h:00m = Surface Interval Group (SIG) "R4".
- From Table C: As an SIG "R4", if you want to dive to 15m / 50', the MNDT is 45 minutes. Since you plan to dive for 30 minutes during your 3rd repetitive dive, you are within the MNDT, and therefore you do not need to make decompression stops in your third dive, but do a Safety Stop.
- From Table C: The Nitrogen Penalty Time (NPT) for an SIG "R4" is 30 minutes, therefore the Total Bottom Time (TBT) will be 60 minutes (ABT + NPT = TBT or 30 minutes + 30 minutes = 60 minutes).
- If you go to Table A, after concluding the 3rd Dive, which RNG will you be?
  - Table A: 15m / 50' for 60 minutes = RNG "F".



#### CONTINUOUS DIVES

**Warning: Continuous dives are dangerous and are not recommended. Avoid them whenever possible.**

For "Continuous Dives" follow these general instructions:

- For dives to the same depth: add the bottom times together. Treat as one dive and use the total time to determine your RNG letter and decompression status.
- For dives to different depths: take the RNG letter from your first dive and find the same letter group at the depth of the second dive. Begin the second dive as if you had

*Please note that if the SIT (Surface Interval Time) is less than indicated in Table B for each RNG, then these dives are known as "Continuous" dives. Avoid these types of dives whenever possible.*

already spent the bottom time listed for the group letter. This is your Nitrogen Penalty Time (NPT). Calculate your TBT as usual.

Examples:

## 6. Continuous dive to same depth

**First Dive to 20m / 66' for 20 minutes**  
**Surface Interval: 0h:10m**  
**Second Dive to 20m / 66' for 40 minutes**

- From Table A: 20m / 66' (21m / 70') for 20 minutes = Residual Nitrogen Group (RNG) "C". A Decompression Stop is not needed, but do a Safety Stop.
- A SIT of 10 minutes does not permit entry into Table B and the two dives are to the same depth. Add the bottom times together (20 minutes + 40 minutes = 60 minutes).
- Therefore this will be considered as one dive to 20m / 66' for 60 minutes.
- From Table A: 20m / 66' (21m / 70') for 60 minutes, you need to do 2 deco stops in your second continuous dive, the first one at 6m / 20' for 5 minutes and the second one at 3m / 10' for 10 minutes.
- Your RNG becomes "H".

## 7. Continuous dives to different depths

**First Dive to 20m / 66' for 20 minutes**  
**Surface Interval 0h:10m**  
**Second Dive to 15m / 50' for 40 minutes**

- From Table A: 20m / 66' (21m / 70') for 20 minutes = Residual Nitrogen Group (RNG) "C". A Decompression Stop is not needed, but do a Safety Stop.
- A SIT of 10 minutes does not permit entry into Table B and the two dives are to different depths. This is a **Continuous Dive**, therefore you have to take the RNG letter from your first dive (C) and find the same letter group (C) for the depth of the second dive (15m / 50'). Begin the second dive as if you had already spent the bottom time listed (30 minutes) for the group letter (C), at the depth of 15m / 50'. This is your Nitrogen Penalty Time (NPT).
- Therefore this will be considered as one dive to 15m / 50' for 70 minutes (40 minutes ABT and 30 minutes NPT).
- From Table A: 15m / 50' for 70 minutes (75 minutes), you do not need to do deco stops, but do a Safety Stop. Be careful, you are at the limit (yellow) of the decompression margins.
- Your RNG becomes "G".

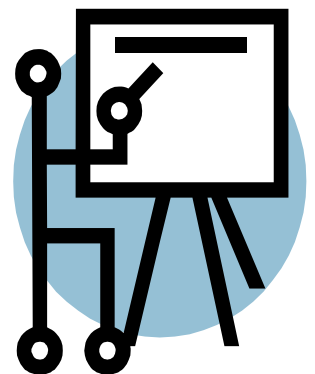
To further decrease your risk factors (cold, exhaustion, age, obesity, smoker, etc), add your SIT to the bottom time, and then it would be considered as one dive to 15m / 50' for 80 minutes (40+30+10), or 15m / 50' for 85 minutes.

If you do this, you need to do a 5 minute Decompression Stop at 3m / 10' on your second continuous dive, and your RNG will be "H".

## 8. Finding a Surface Interval Time

There might be times when you know the profile of two dives that you wish to do, and all you might want to do is to find the minimum Surface Interval that you need in order to avoid doing decompression stops. This is done as follows:

**First Dive: 27m / 90' for 20 minutes**  
**Surface Interval: Unknown**  
**Second (Repetitive) Dive: 18m / 60' for 35 minutes.**



*Calculating your Surface Interval in order to avoid mandatory decompression stops is easy with the ACUC dive tables*

### How long do you have to stay at the surface to avoid decompression stops in your second dive?

- From table A: 27m / 90' for 20 minutes: RNG "D".
- From table C: In a dive to 18m / 60' for 35 minutes (MNDT) the corresponding SIG letter is "R2".

So therefore, the question that you should ask yourself is: If I am an RNG "D" following the first dive, and I need to become a SIG "R2", what is the minimum time that I have to spend at the surface to avoid decompression stops in my second dive?

- From table B: Go to the top row and find the RNG "D"; continue down in that column and find the **first** occurrence of the SIG "R2".
- Follow that row towards the left to the left most column. There you will find the SIT range of "3:00 - 3:59". Therefore, your minimum Surface Interval in order to do those two dives, without having to do decompression stops in your second dive, is 3 hours.

Let us check the whole profile now that we have all the factors:

- From table A: Dive 1: 27m / 90' for 20 minutes. No Decompression stop needed, but do a Safety Stop. RNG "D".
- From table B: Surface Interval: 3 hours. SIG "R2".
- From table C: Dive 2: as an SIG "R2", 18m / 60' for 35 minutes, therefore  $35 + 15 = 50$  (ABT + NPT = TBT).
- From table A: 18m / 60' for 50 minutes. No Decompression Stop needed, but do a Safety Stop. RNG "F".