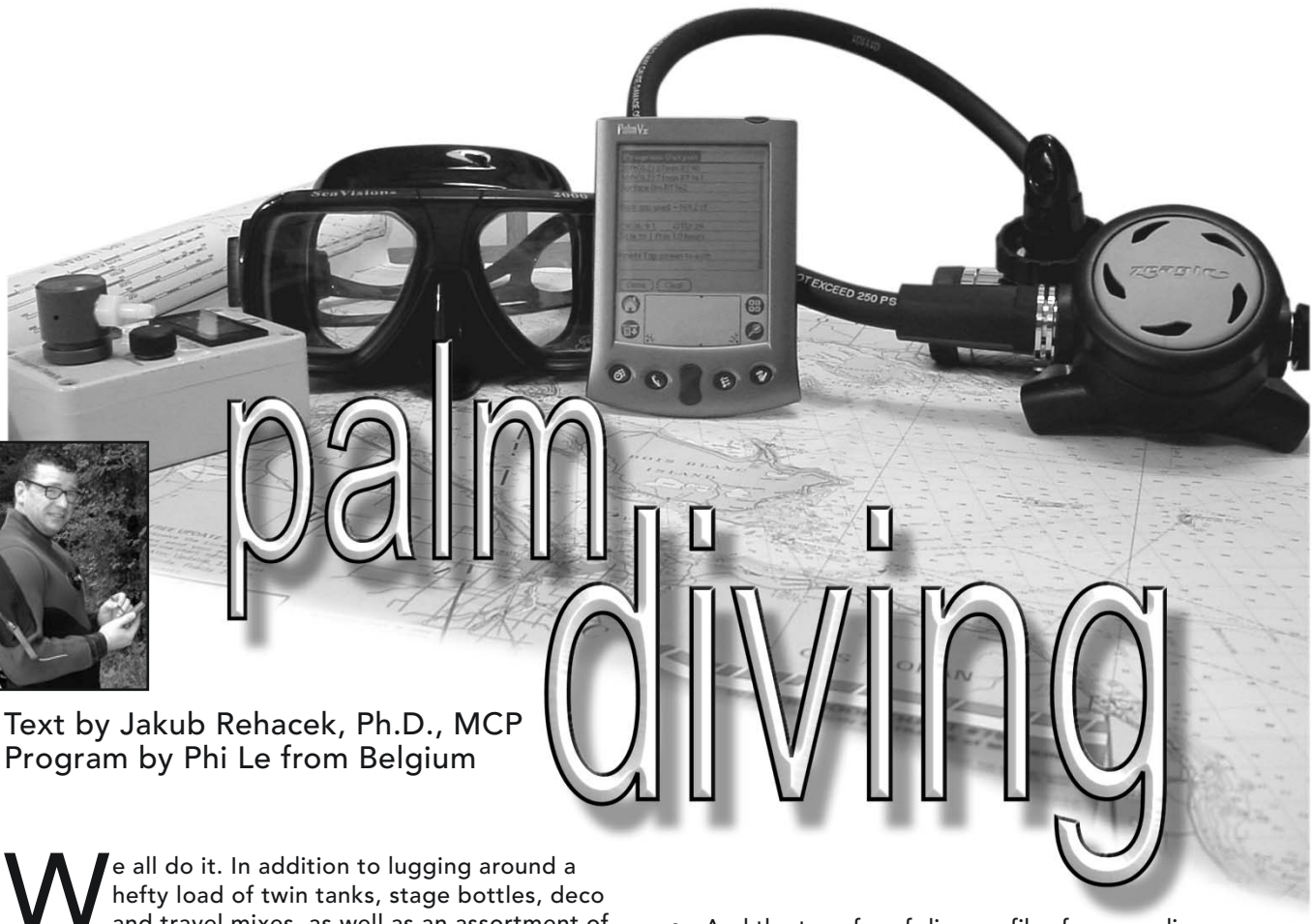

palm diving

Text by Jakub Rehacek, Ph.D., MCP
Program by Phi Le from Belgium

We all do it. In addition to lugging around a hefty load of twin tanks, stage bottles, deco and travel mixes, as well as an assortment of other dive gear, we bring along our notebook computers. We use them to plan our dives and to transfer the dive profiles from our dive computer. Although the notebook PC is often the most expensive piece of gear we take along, it is the least equipped to handle the harsh conditions of a boat or jungle travel. Salt, sand, water and even dive buddies can bring a quick demise to this trustworthy electronic companion.

Well, there is a better way with a palm-sized Personal Digital Assistant (PDA) device. It is no bigger than a palm of your hand, although it can pretty much do everything your notebook PC does. And, priced for under $200, it is much easier to replace, should it jump ship or be crushed under your dive buddy's twin tanks.

There are two types of PDA devices: the pocket PC, which runs a scaled-down version of the MS Windows operating system, or a Palm device, which runs Palm OS by 3Com. I will concentrate on the Palm OS compatible devices, since they are more affordable, there is much more software available for them and it is the system I own and use.

Before buying a Palm OS, I had previously used my notebook PC for the following dive-related tasks:

- The planning (theoretical, of course) of decompression dives using several freely available deco-planning applications (Z-plan, GAP),
- The verification of my and my buddy's gas consumption and dive times using spreadsheet calculations,
- And the transfer of dive profiles from my dive computer into a dive-log software to examine the profile and plan other dives.

The Palm device can do all this and more by using the excellent dive-planning software, DecoWeenie, a Palm-based, fully-fledged decompression program that utilizes Bühlmann's decompression algorithm for mixed gas decompression on both Open Circuit and Closed Circuit diving modes. The Palm device is capable of using different deep safety stop options (Gradient Factors, Pyle, GVE) as well as different input modes to describe the dive profile. It is available (for theoretical use only) at **http://groups.yahoo.com/group/PalmPlanner**

DecoWeenie Palm Decompression Software

Input:
- Max Depth
- Bottom Time
- Bottom Gas O2 %
- Bottom Gas He %
- Set up to 3 deco gases
- Deco Gas 1 O2 %
- Deco Gas 1 He %
- Deco Gas 2 O2 %
- Deco Gas 2 He %

Here are some of the features of the DecoWeenie:

- The device is equipped with open-circuit mode (OC), closed-circuit mode (CC), OC deco on CC mode (for rebreathers with small scrubber canister) and OC bailout on CC mode.
- Estimates OC gas consumption,
- Computes CC single fixed or multiple setpoints, as well as multiple diluents,
- Uses the well-proven ZHL-16B or 16C algorithms by A.A. Bühlmann,
- Allows any gas mixture containing Helium, Oxygen, and Nitrogen,
- Optimizes the OC deco mixes gas-switch depths to minimize deco,
- Option to maximize O2 window deco stop,
- Option to skip all non-mandatory shallower stops after a "maximize O2 window" stop,
- Can set your END,
- Can set your ascent/descent rates,
- Calculates CNS percent and OTU's for every single dive,
- Option to use Gradient Factor (GF) deep safety stops,
- Option to use Pyle deep safety stops,
- Option to use GVE deep safety stops,
- Option to update tissues following Pyle / GVE stops,
- Option to save tissue data for repetitive dives,
- Uses metric or imperial units,
- Time-to-fly (and time-to-altitude) calculations,
- Diving at altitude,
- Oxygen can be made narcotic,
- "Air" breaks for 100 percent O2 OC or 1.6 CC deco setpoint,
- Option to update tissues during air breaks,
- Automatically plans a range of bail-out tables of different bottom times at same depth,
- Different conservatism modes,
- Single-Depth (square profile) or Way-Point (non-square) mode input,
- Way-Point could be used for complex cave profile or drop-off wall diving,
- Option to use alveolar water vapour pressure,
- CNS and OTU tracking.

Another deco-planning software for Palm the device is the M-Plan. I have not used that one, so you will have to critique its capabilities for yourself. (For information on the M-Plan, log on to **http://www3.sympatico.ca/bloedorn/**

The spreadsheet calculations for gas consumption and dive time, as well as many other dive-related calculations (dissimilar tanks, EAD and more) can be easily done in MiniCalc, **http://www.solutionsinhand.com/mc/minicalc1.htm** which is an excellent spreadsheet application for Palm OS. MiniCalc synchronizes with your desktop version of MS Excel spreadsheet. It supports over 80 functions, as well as color and font formatting.

I use several gizmos and a Paladin software for Palm OS to transfer a dive profile from my dive computer into my Palm. I have built a serial interface cable between my Aladin and a PC. There are several designs, I have used and they are found at **http://www.muenster.de/~matthias/aladin/building.htm** The same cable can be then used to connect to the 9pin connector of the Palm cradle through a simple converter to upload the dive profile from your dive computer into the Palm. There it can be loaded into a Paladin **http://kuro.neko.ac/aladin/paladin-e.html** a dive-log application. Paladin can also "act" as the Uwatec MemoMouse to facilitate transfer from Aladin/ Palm to DataTrak software from Uwatec. This combination alleviates Aladin memory limitations without a need for the Uwatec MemoMouse.

Users of other dive computers can use the DiveComputer to interface Palm to Dive computer **http://members.aol.com/GLorensen/divecomp.html)** The DiveComputer supports Suunto and Citizen dive computers.

Another excellent dive-log software for Palm OS, although without data-transfer is a Ruiz Scuba Log, which is found at **http://www.inch.com/~archi/scuba.html**

DecoWeenie software provides your decompression stops times, run times, back gas used, CNS% and OTUs.

Mixer, Palm Gas Blending Software
Programer Guy Wittig from Sydney, Australia.

An indispensable diving tool for my Palm Pilot is Mixer, a Mixed Gas blending program.
http://www.users.bigpond.com/wittig/mixer.html

It allows:

- Partial Pressure mixing of Nitrox, Heliox, Heliair or Trimix ,
- Starting and Finishing mixes,
- Calculation of an "Ideal Mix" based on ppO2 and EAD,
- Air topping of an existing mix,
- Programmable gas composition of storage banks,
- Metric and Imperial units,
- Calculation of gas volumes and cost estimates,
- Calculation of Heliair composition based upon oxygen content.

Tide Tool, Palm Tide Charting Utility Software

Palm Tide Chart Utility can provide important tide, current, sun rise, sun set, and moon phases world wide until the year 2031.

TideTool **http://dive.to/palmpilot** is an indispensable tide charting utility.

This program:

- Computes tides and currents from a worldwide database of over 6100 locations,
- Shows graphical or tabular display of tides and currents,
- Taps the graph to get a prediction for a specific time and date,
- Covers the years 1998 to 2031,
- Has user-selectable units of height and speed,
- Displays times of sunrise/sunset, moonrise/moonset and moon phases,
- Displays in color (or grayscale) on devices that support it, under Palm OS 3.0 or later,
- All regional databases can be loaded; user can enable just those needed,
- Beams program and data and can be moved to ROM.

Last, but not least, I use my Palm to connect to my e-mail and surf the net during those long surface intervals. My Palm can also connect to my cell-phone via a simple interface cable from The Supply Net **www.thesupplynet.com**. In addition, it connects to my dial-up ISP by using Eudora Internet Suite **http://www.eudora.com/internetsuite/** allowing me to access my corporate and personal e-mail accounts and surf the web through the EudoraWeb browser. Just make sure to watch for those airtime charges.

The PDA can easily replace your notebook PC on your next dive trip, and when paired with a portable espresso machine it will be a coolest combo on the boat and surrounding archipelago.