

**VICTORIAN AIR FILL SURVEY 1993-1994**

Warrick McDonald

**TABLE 1**

**VICTORIAN AIR FILLS 1.7.93-30.6.94**

Area	Air fills	Average per outlet
Central	28,222	1,411
West	21,673	1,548
East	27,811	2,318
<b>Total</b>	<b>77,706</b>	<b>1,689</b>

**Introduction**

The Air Fill Survey came from an idea that I had early in 1993. I had been asked by a number of people, including the Coroner and Police, about the number of divers and the number of scuba dives undertaken in Victoria and each time I could only have a guess at the figures. As no one can scuba dive without air the air fill figures will give the minimum number of scuba dives undertaken in Victoria during the study period, July 1st 1993 until June 30th 1994. It must be remembered that some divers carry out more than one scuba dive per air fill.

I believe the figures in this survey, carried out for the Diving Industry of Victoria Association, will provide information about the size of the recreational scuba industry in Victoria.

**Methods**

Information was collected by telephone, at the end of each month, by myself. The results were randomly checked by talking to different staff members at some establishments and by requesting the figures again at a later date, implying that they had not been supplied.

The individual air supplier's results in this survey are not available for publication. The protection of the providers was of paramount importance to me and therefore a code was used so that only I know individual figures. The information will be kept to enable future surveys to be compared or checked against it.

**Results**

There were 46 respondents to the survey, consisting of dive shops, cylinder test stations and other compressed air outlets. They were divided into three groups. The first group, the Central area, consisted of 20 outlets, all with 03 telephone numbers, in metropolitan Melbourne. Secondly 14 outlets made up the West area, being all respondents west of a line drawn from the City of Melbourne and running through the heads of Port Phillip, but not including 03 telephone numbers. The final group consisted of 12 outlets in the East area, all respondents east of the line dividing Port Phillip, but not including 03 telephone numbers.

The Central area, metropolitan Melbourne, produced the most air fills but this is to be expected because of the high proportion of air fill stations and of the

Victorian population in the area. The East area outlets filled the next largest number of cylinders although it was the smallest group. Again this is to be expected as a lot of diver training is done in Port Phillip, outside the 03 telephone number zone, from the Mornington Peninsula. In all tables the averages of air fills have been rounded to the nearest whole number.

Compressors are expensive, a simple calculation shows the following. These costs are a low "guestimate." For example a 15 cfm high pressure compressor costs approximately \$17,000, 4 x high pressure storage cylinders are about \$ 3,200, manifold, filling lines, panel etc. are another \$1,500.00 giving a total of \$21,700.

If one assumes that every fill was sold for \$6.00, this requires removing the school training dives which would be costed differently, the staff or owner's fills and any discounted bulk buys before calculating the gross income. The current price for an air fill ranges from \$4.00 to \$7.00.

These 46 outlets average 1,689 fills, at \$7.00 a fill that would be \$11,823.00 income. That sounds good, but I am advised by the outlets that the real figure, because of the variable factors, is more like \$5.00 per fill and half the number not being paid for directly. Now the income drops to \$4,222.50. The running costs to be set against this income are considerable; new filters every 200 hours or so \$185.00; oil \$90.00 after approximately 400 running hours; valve service about \$140.00 after 800 hours; and electricity costs of about \$200.00 a month plus the inevitable broken filling hoses and yokes. Overheating or low oil damage that can instantly remove \$4000.00 with one grinding clunk.

How long does it take to fill a scuba cylinder ? We know the problems of filling quickly and filling slowly so somewhere in between lies (depending on the day) the perfect time. Let us, for the sake of argument, say 5 minutes a fill. Now this takes into account multiple hose filling panels, because the physical time to connect and disconnect will still be about the same. West and East's figures were largely reported to be taken on the weekends whereas the Central area's outlets are not usually open on Saturday afternoons nor on Sunday. As Central's average

**TABLE 2**

**VICTORIAN AIR FILLS BY MONTH**

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Fills	3,406	3,031	3,836	5,396	7,125	7,808	9,813	9,899	11,139	8,196	4,837	3,480
Average	74	65	85	117	155	170	213	215	242	178	101	76

**TABLE 3**

**CENTRAL AIR FILLS BY MONTH**

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Fills	1,453	1,325	1,599	2,032	2,554	2,771	3,041	3,264	3,767	2,938	2,054	1,454
Average	74	66	80	102	128	139	152	163	188	147	103	73

**TABLE 4**

**WEST AIR FILLS BY MONTH**

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Fills	959	617	1,153	1,480	1,900	2,214	3,170	3,064	3,515	2,088	844	669
Average	68	44	82	106	136	158	226	219	251	149	60	48

**TABLE 5**

**EAST AIR FILLS BY MONTH**

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Fills	964	1,089	1,084	1,884	2,671	2,823	3,602	3,571	3,857	3,170	1,739	1,357
Average	80	91	90	157	223	235	300	298	321	264	145	113

is 1411 air fills this gives 117 hours and 35 minutes working time per year filling tanks. The hours of these outlets vary but it can safely be assumed that the majority of them are retailers and therefore work a 52 hour week. This means that 2 hours and 15 minutes a week are dedicated to air fills. The story changes when we consider the East and West figures, most, as stated to me, are not full time and therefore the majority of air fills were done at the weekend. Consider the difference, 9 a.m. until 6 p.m. for two days equals 18 hours. In the figures supplied by the West this means with their average of 1,548 air fills take up 129 working hours, meaning 7 hours and 9 minutes a weekend are spent filling tanks. The East area had an average of 2318 air fills and this works out at 193 working hours per year resulting in 10 hours and 45 minutes a weekend spent filling tanks.

Air fills are a service for the customer and are a necessary item for a dive school. Unfortunately the

industry feeling is that the more air fills an outlet does the more money they are losing !

**Diving season**

March appeared to be the best month for diving and this seems to give credibility to the belief that the summer season is getting later all the time. Central's much more even graph when compared to the other areas is possibly due to the more stable customer base and full time operation of outlets.

The sudden drop in air fills in the West after March could be attributed to the large swells that battered the West coast for two months. The holiday period having ended, schools returning and the return to the city of holiday makers, would also help to explain the decrease in numbers.

East had a slow start to the season and a sudden drop in April, possibly due to the bad weather or the fact that a number of the outlets are only part time or keep unusual hours.

The Air Fill Survey could now be used by groups, such as SPUMS, to compare the accident/incident rate in Victoria with the number of dives undertaken. This figure then may show if scuba diving in Victoria is that different, as far as safety, from other areas. It has been a belief by many that our cold water and strong currents may cause more cases of decompression illness and especially place in danger many divers that are not trained in Victoria, and then dive here without a familiarisation dive, or dives, under guidance of an instructor or divemaster.

Weather is an obvious factor that slows the number of students enrolling in courses and keeps the qualified divers inside watching television. The diving season basically starts after the AFL Grand Final and ends at Easter. This survey shows that general feeling to be true.

#### **Acknowledgment**

I wish to thank the 46 providers who put up with my incessant nagging for the facts.

*Warrick K.D.McDonald is a scuba instructor and dive shop owner. His address is A.B.Ocean Divers, 237 East Boundary Road, Bentleigh, Victoria 3204, Australia.*

## **SPUMS NOTICES**

### **SPUMS ANNUAL GENERAL MEETING 1995**

will be held at  
Castaway Island Resort, Fiji,  
on Saturday June 27th at 1600.

Motions, in writing, for discussion at this meeting must be in the Secretary's hands by April 14th 1995.

### **NEW ZEALAND CHAPTER OF SPUMS ANNUAL GENERAL MEETING 1995**

The NZ Chapter Annual Meeting will be held on 7, 8, 9 April 1995 at The Pacific Harbour Motel, Tairua. As usual this will combine a scientific meeting, annual business meeting, and practical diving activities, principally at the Alderman Islands.

Part of the meeting will be devoted to a workshop on fitness for diving so that a New Zealand consensus may then be taken to the SPUMS ASM workshop later in the year. Original papers for a free papers session are now invited from members. We would also be very pleased to hear from New Zealand members of topics they would like discussed.

Enquiries should be addressed to

Dr Chris Morgan, 9 Amohia Street, Rotorua, (phone (07) 347 8350); or Dr Rees Jones, Northland Pathology Laboratory, P.O.Box 349, Whangarei, (phone (09) 438 4243; fax (09) 438 4737); or Dr Mike Davis, P.O.Box 35 Tai Tapu, (phone (025) 332218 or (03) 329 6857, fax (03) 332 8562).

### **ANNUAL SCIENTIFIC MEETING AND ANNUAL GENERAL MEETING 1995**

Castaway Island, Fiji.  
Sunday 21/5/95 to Sunday 28/5/95

The Guest Speaker is to be Dr A A (Fred) Bove, Chief of Cardiology at Temple University in Philadelphia. He was the Guest Speaker at Madang in 1982. The Convener of the ASM is Dr David Davies, Education Officer of SPUMS. The theme of the meeting is Fitness to Dive. The Workshop theme is Asthma.

Those wishing to present papers are asked to contact Dr Davies at Suite 6, Killowen House, St Anne's Hospital, Ellesmere Road, Mt Lawley, Western Australia 6050 (Fax 09-370-4541) as soon as possible. The same applies to those wishing to contribute to the Workshop on Asthma, especially if unable to attend the meeting. Dr Davies intends to prepare their written submissions to distribute to those attending the meeting. This means that such contributions will need to be in his hands by the middle of April 1995. Intending speakers are reminded that it is SPUMS policy that speakers at the ASM must provide the Convener with the text of their paper, ready for publication, before they speak.

The Official Travel Agent for the meeting is Allways Dive Expeditions, 168 High Street, Ashburton, Victoria 3147, Australia. Telephone (03) 885 8863, Toll Free 1-800-338-239, Fax (03) 885 1164. From overseas dial 61-3-before the last 7 digits of the telephone and fax numbers.