

Department of Fisheries and Wildlife
Western Australia

1983 REVIEW OF RAINFALL AND WETLANDS IN THE SOUTH-WEST
OF WESTERN AUSTRALIA

Compiled by Research Officer J.A.K. Lane and
Technical Officer D.R. Munro, for submission
to the W.A.W.A. Bird Committee on
November 28, 1983

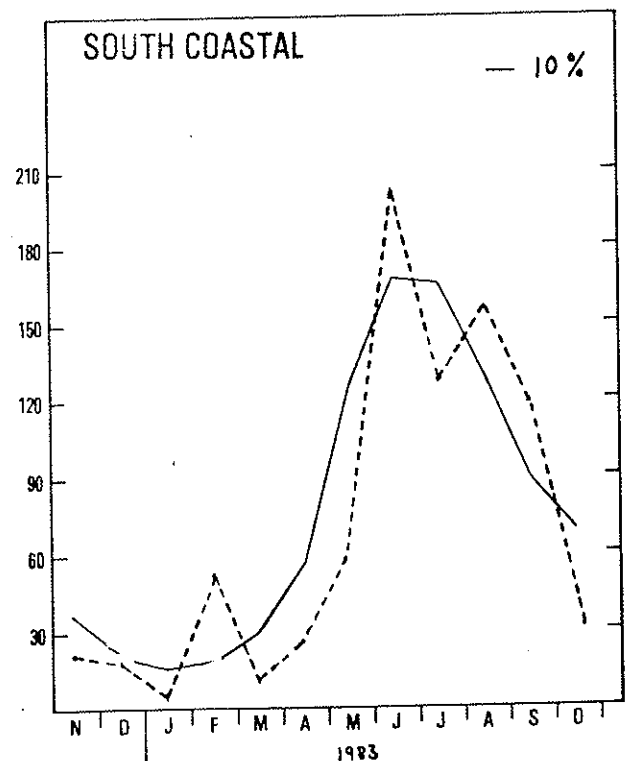
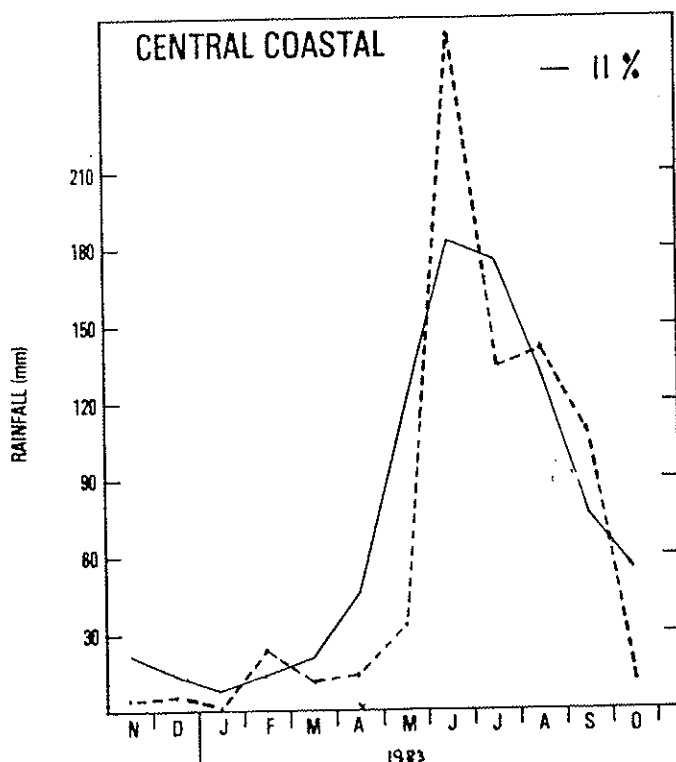
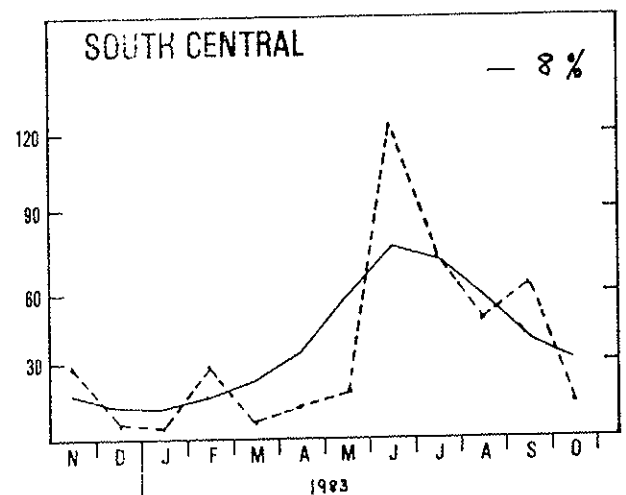
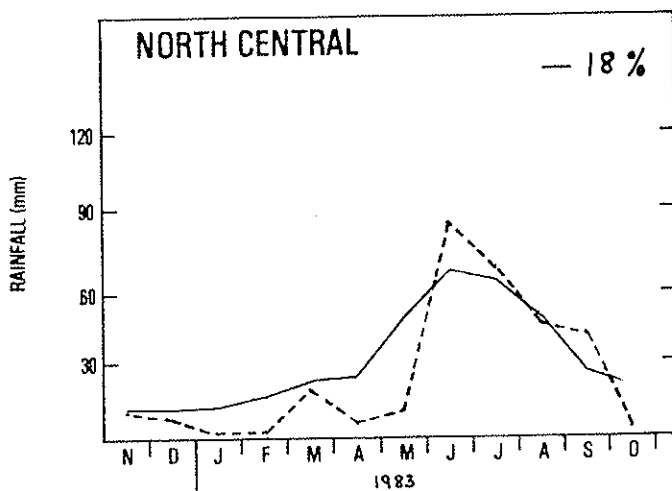
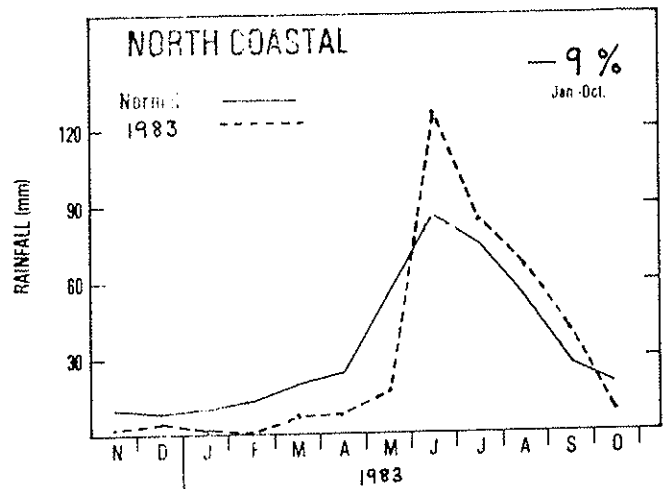
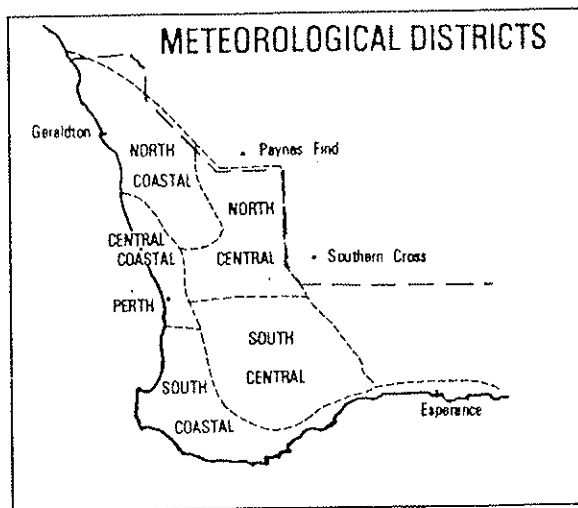


FIGURE 1. Rainfall recorded monthly in each of the five Meteorological Districts of the south-west, November 1982 to October 1983 and November to October Normal. Percentage departures from Normal (Jan.-Oct.) for each Meteorological District are also shown.

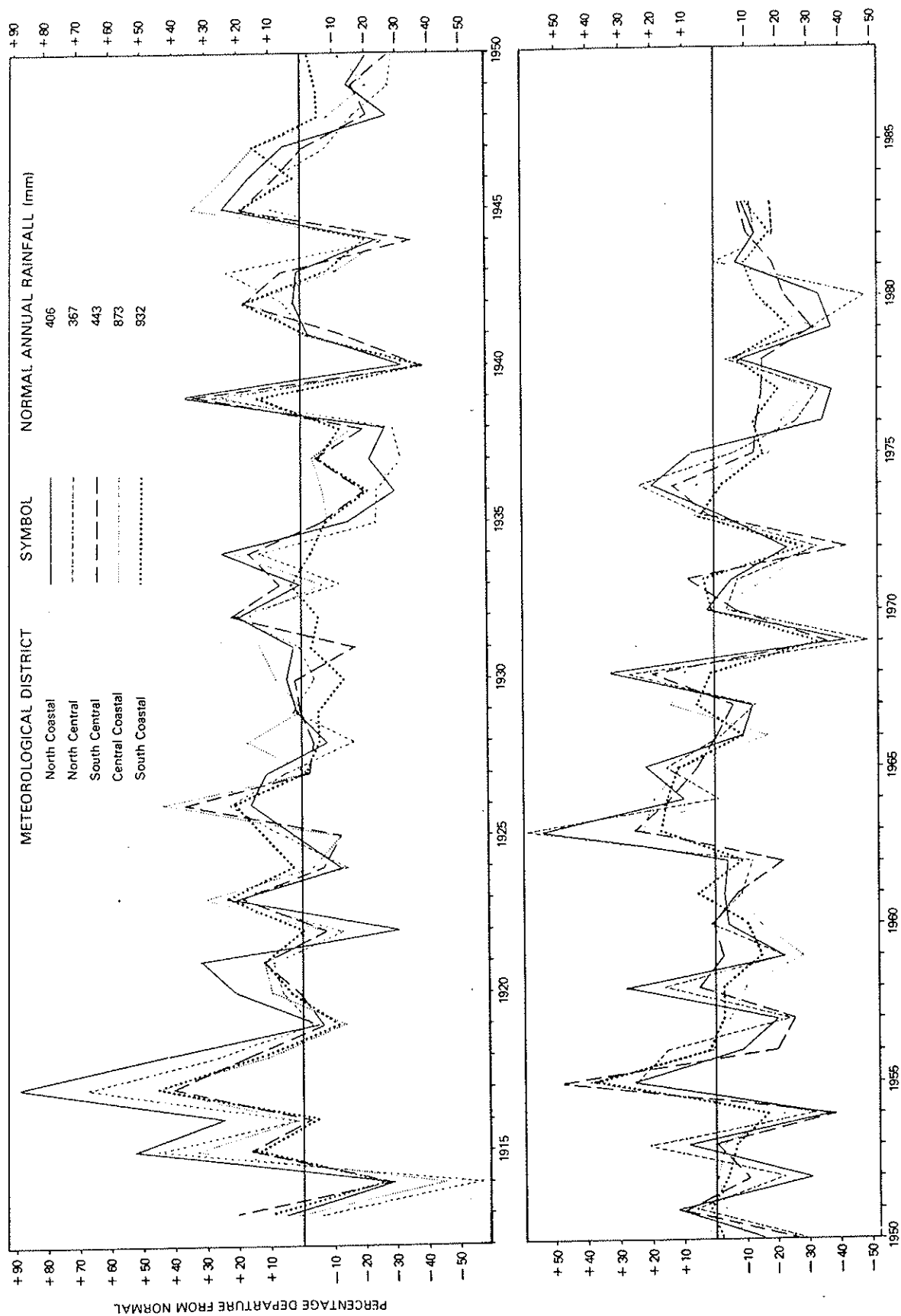
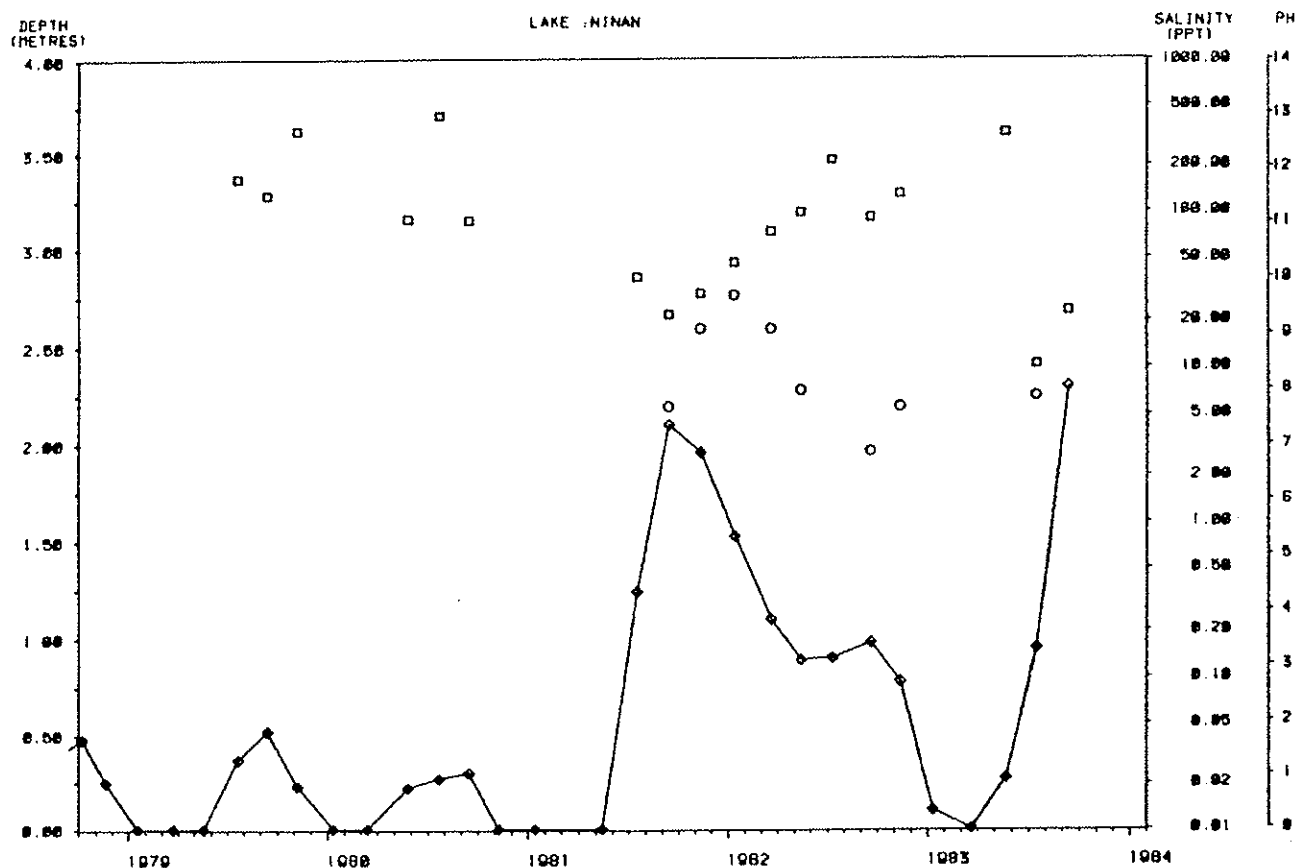
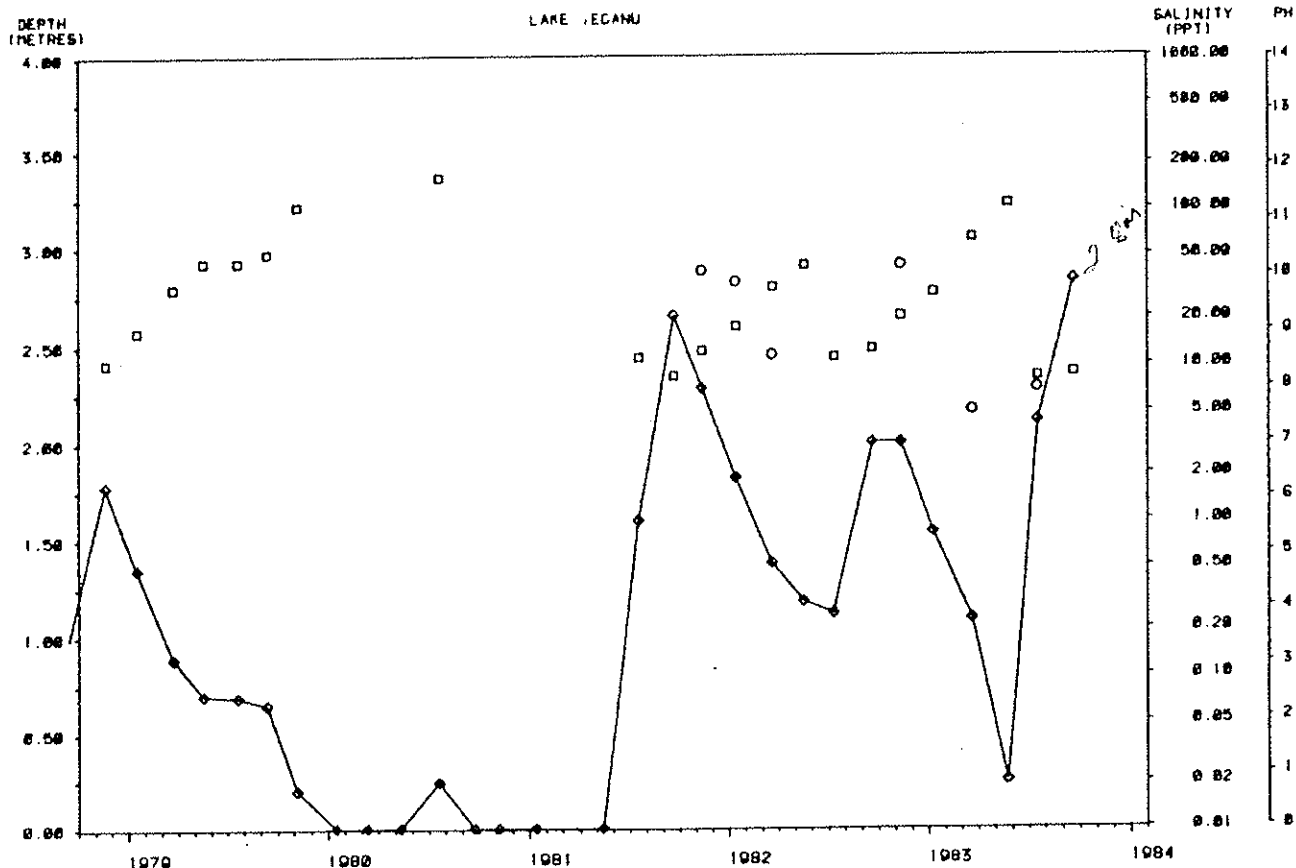


FIGURE 2. Rainfall recorded annually in each of the Meteorological Districts of the south-west, from 1913 to 1983 expressed as percentage departures from normal.

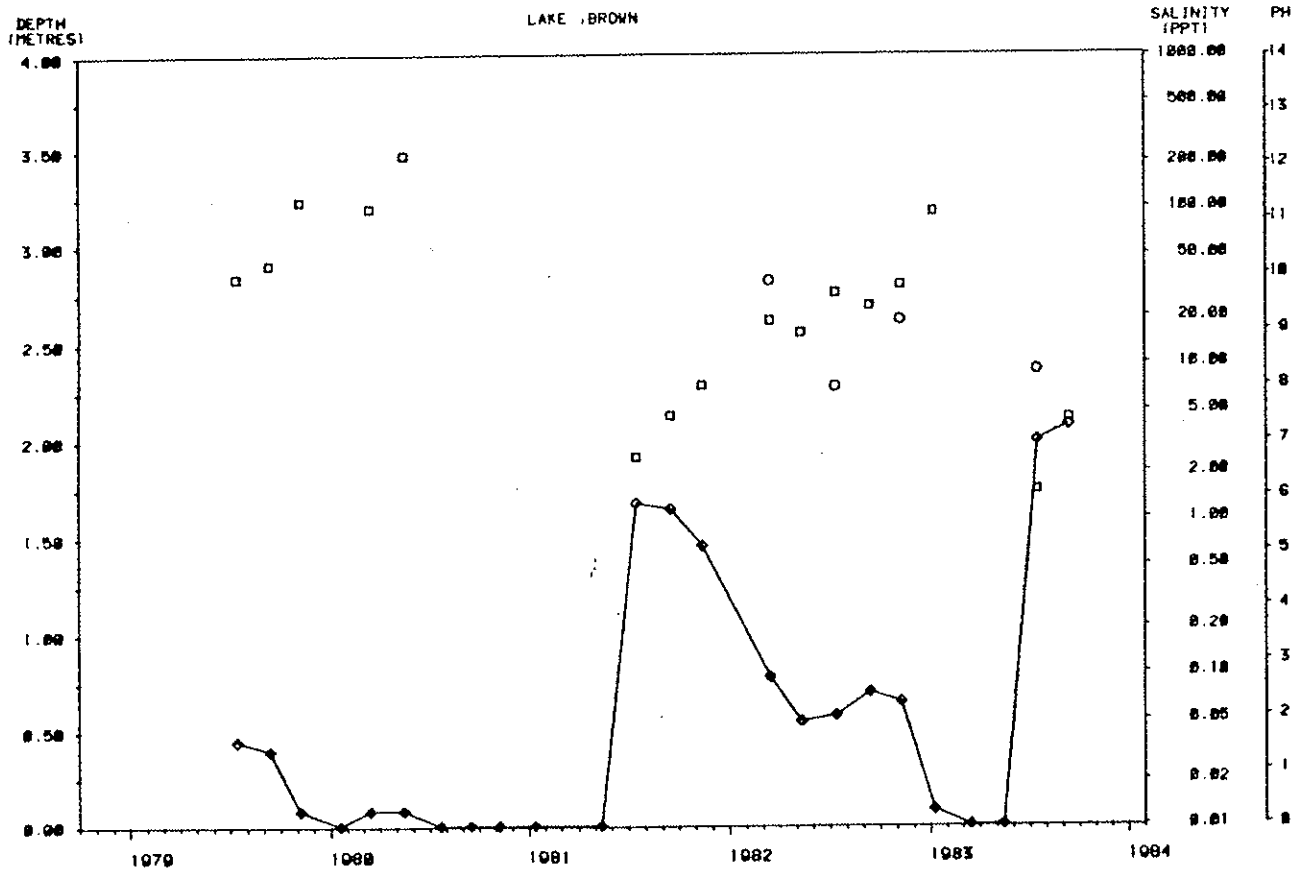
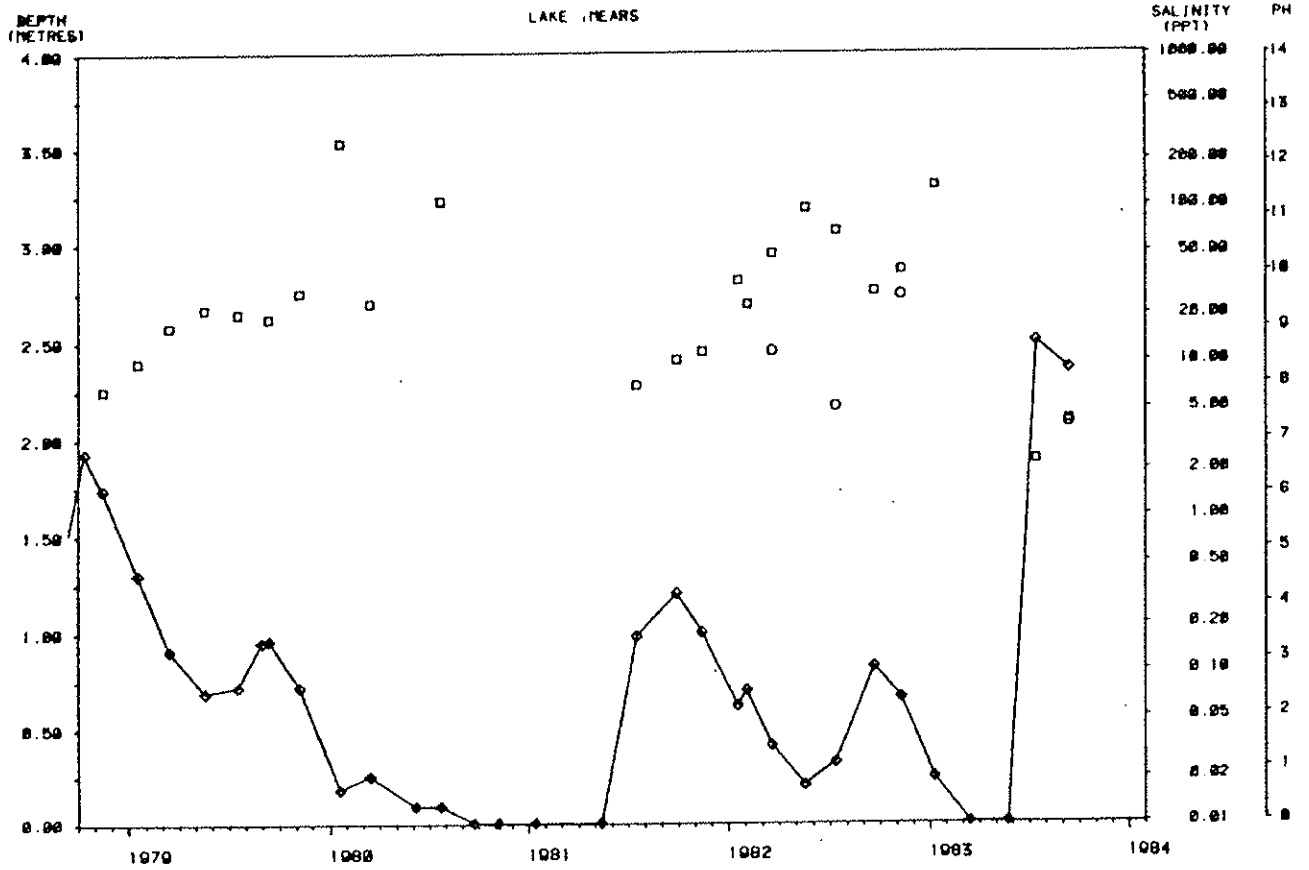
Percentage departures from normal for 1983 are based on January-October rainfall.

Normal rainfalls for this period are 93-96% of annual totals.



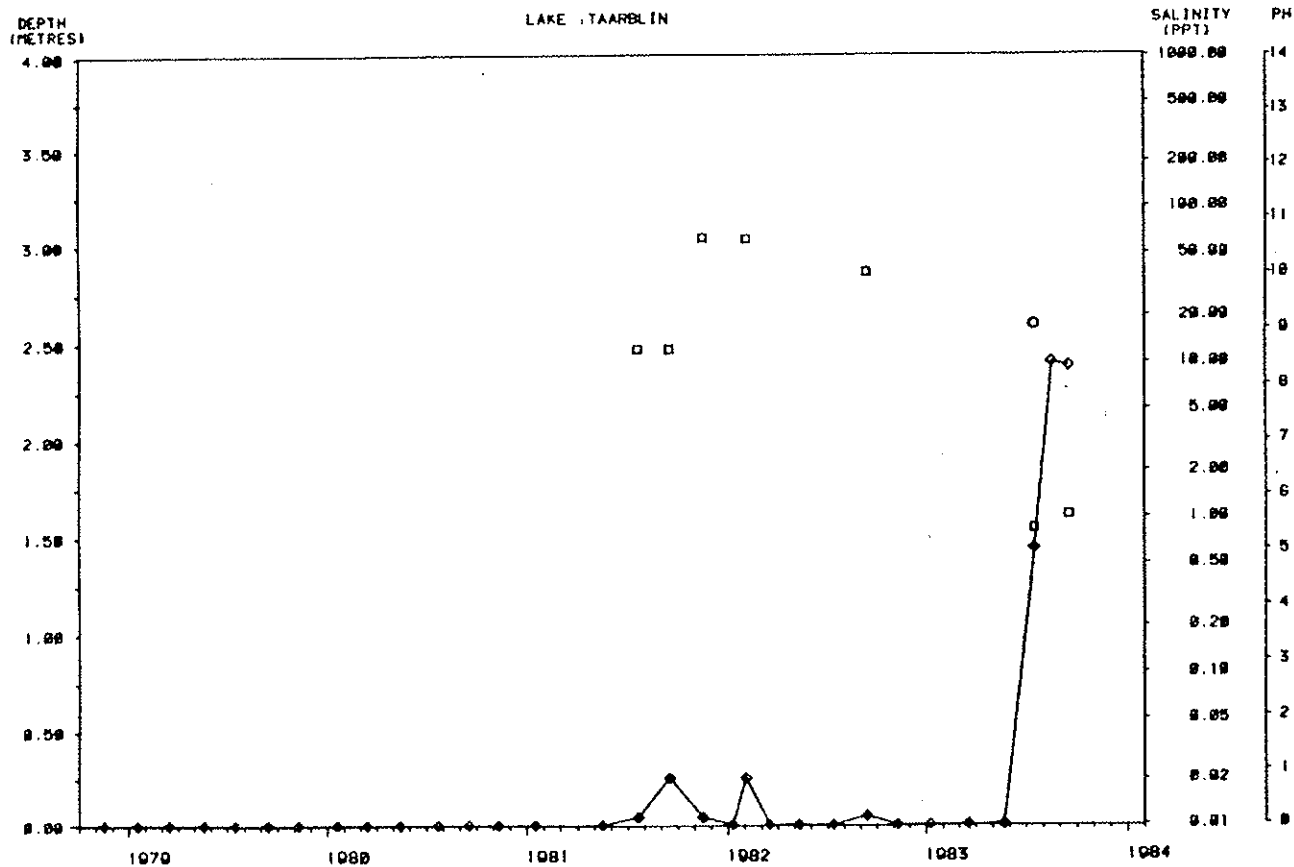
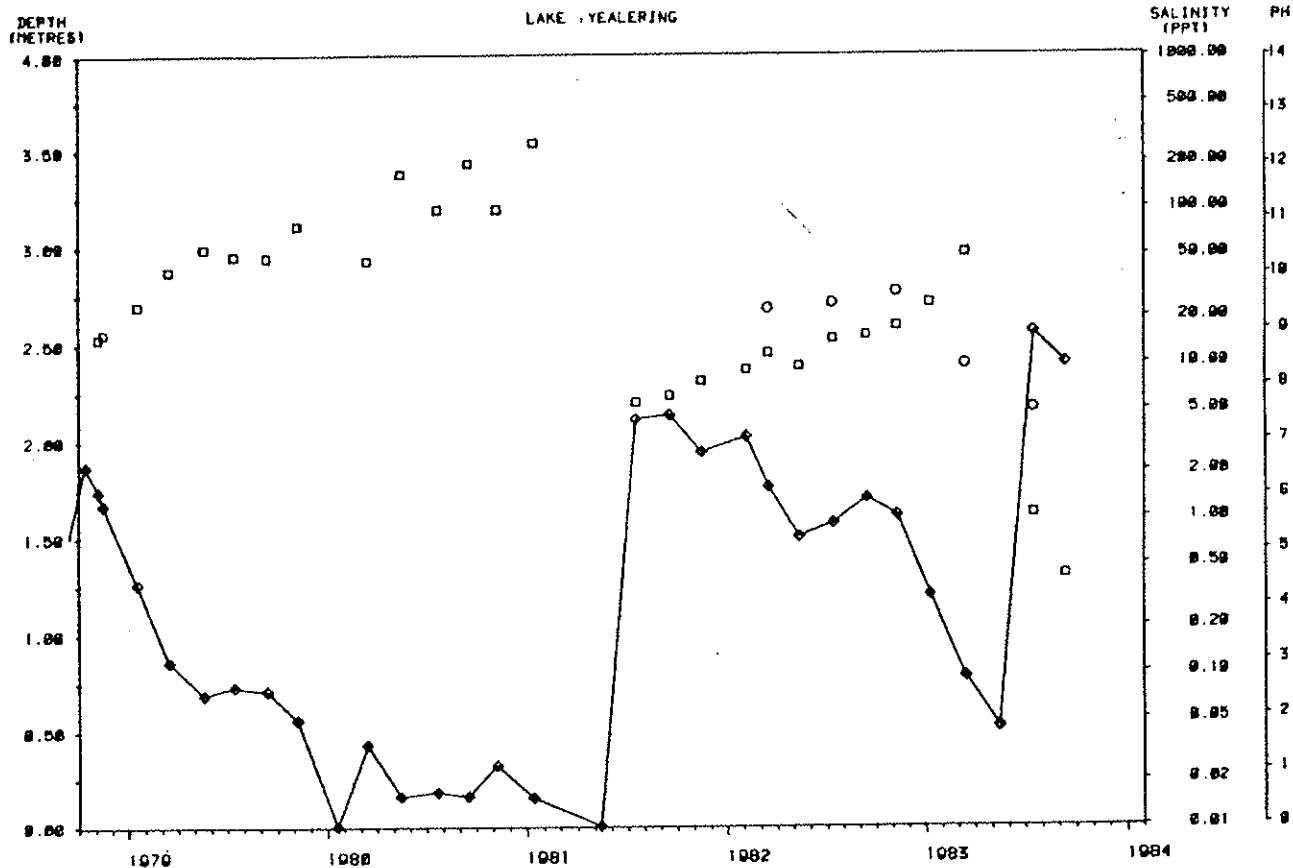
◇ DEPTH □ SALINITY ○ PH FACTOR

VA DEPT. FISHERIES & WILDLIFE
WATERBIRD RESEARCH



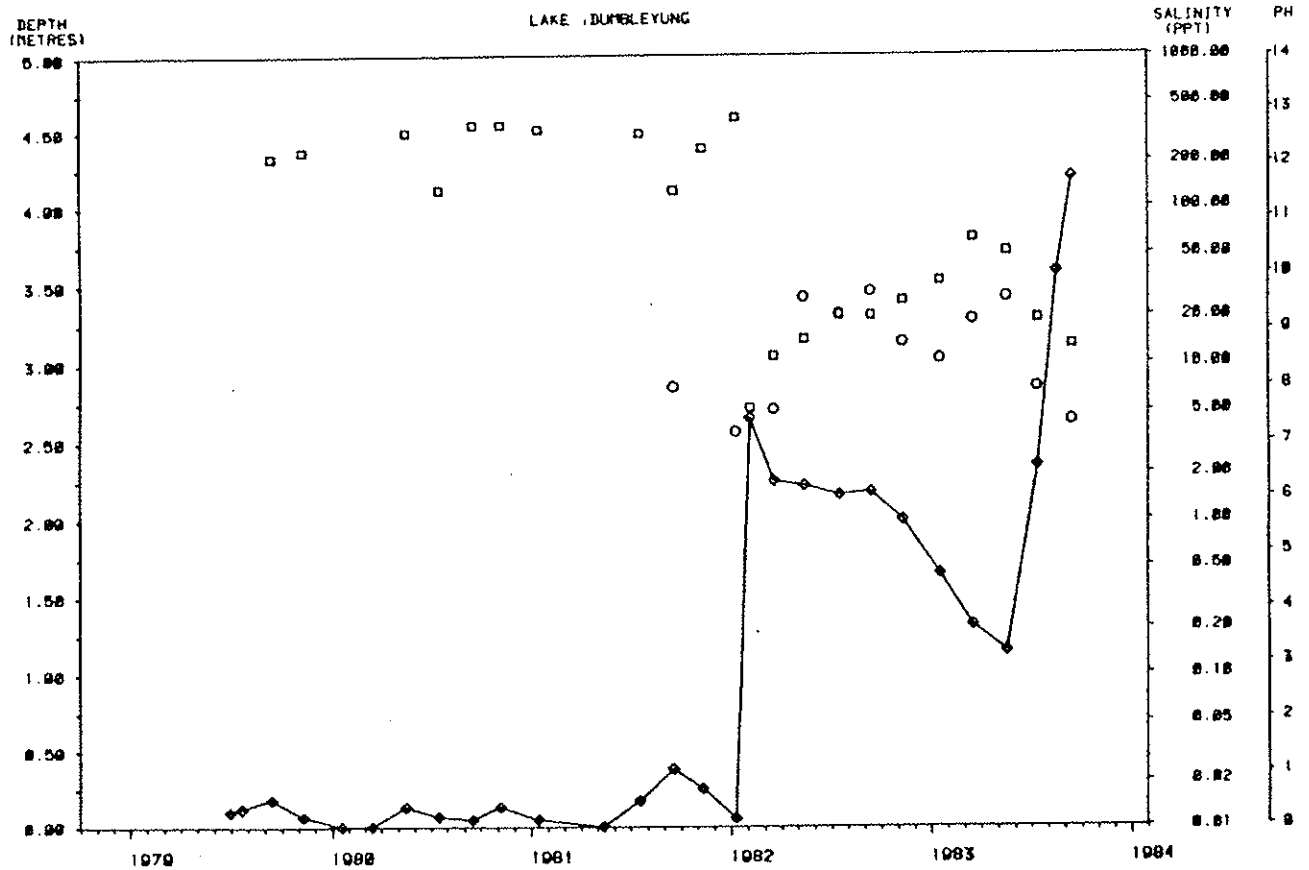
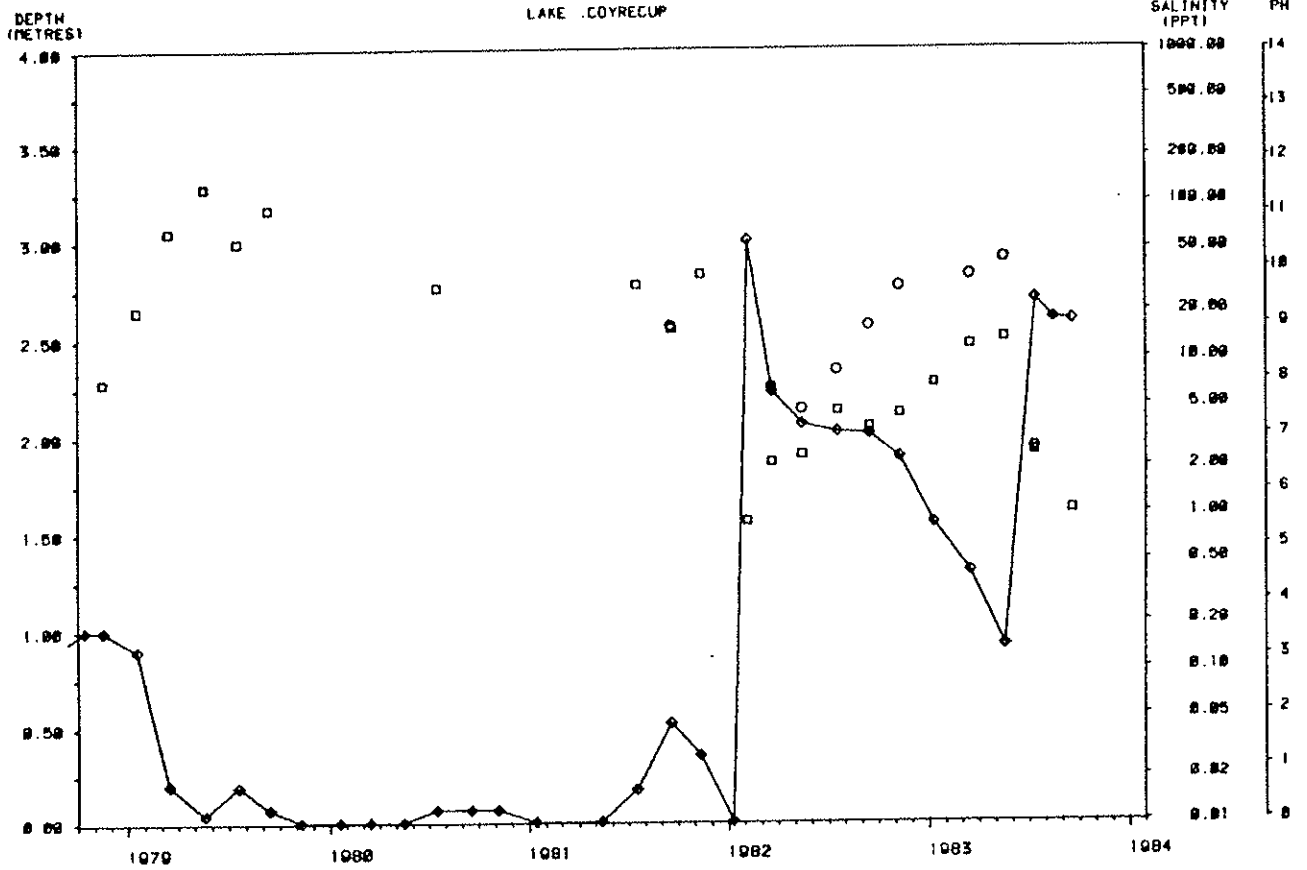
◇ DEPTH □ SALINITY ○ PH FACTOR

VA DEPT. FISHERIES + WILDLIFE
WATERBIRD RESEARCH



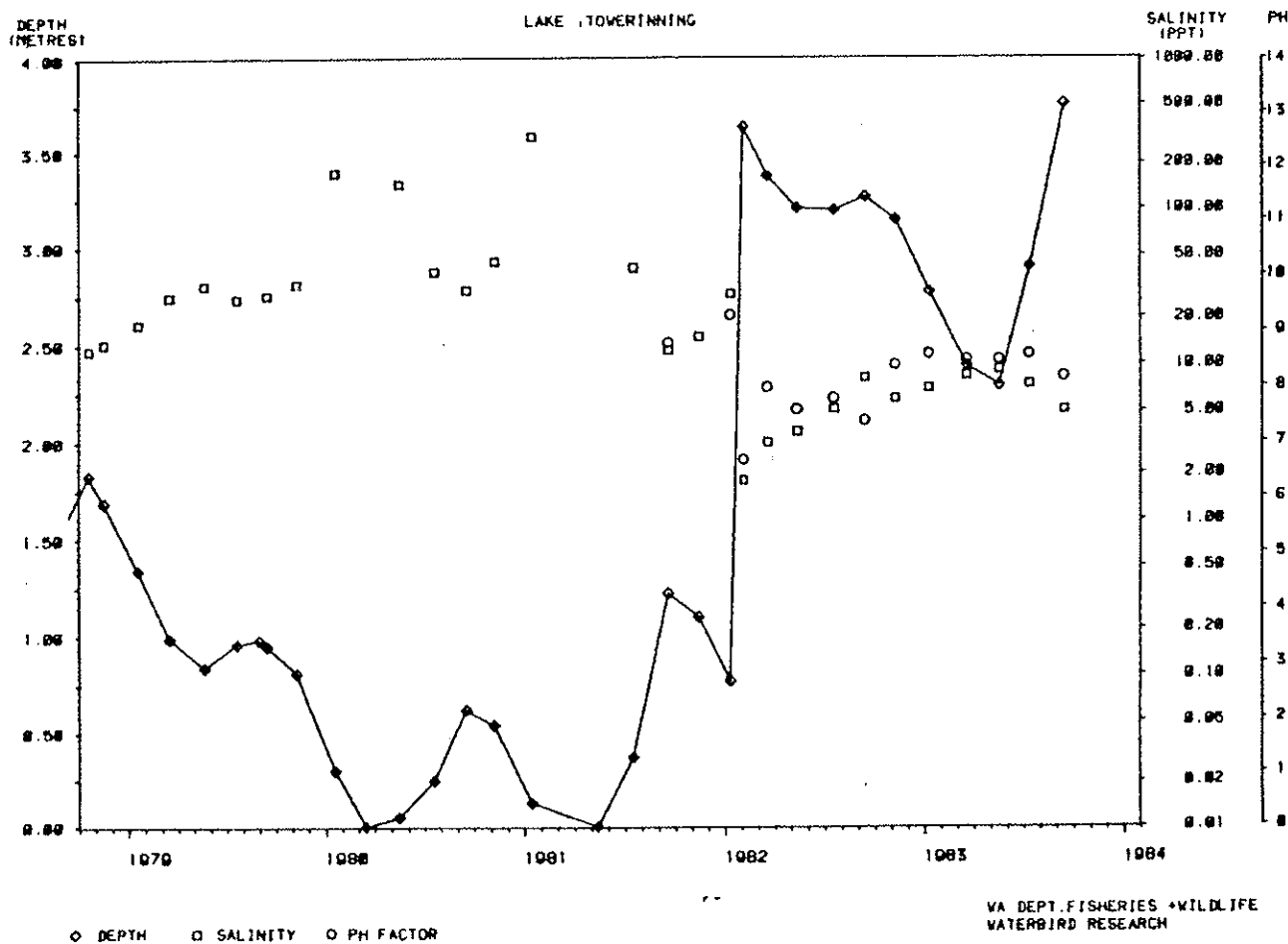
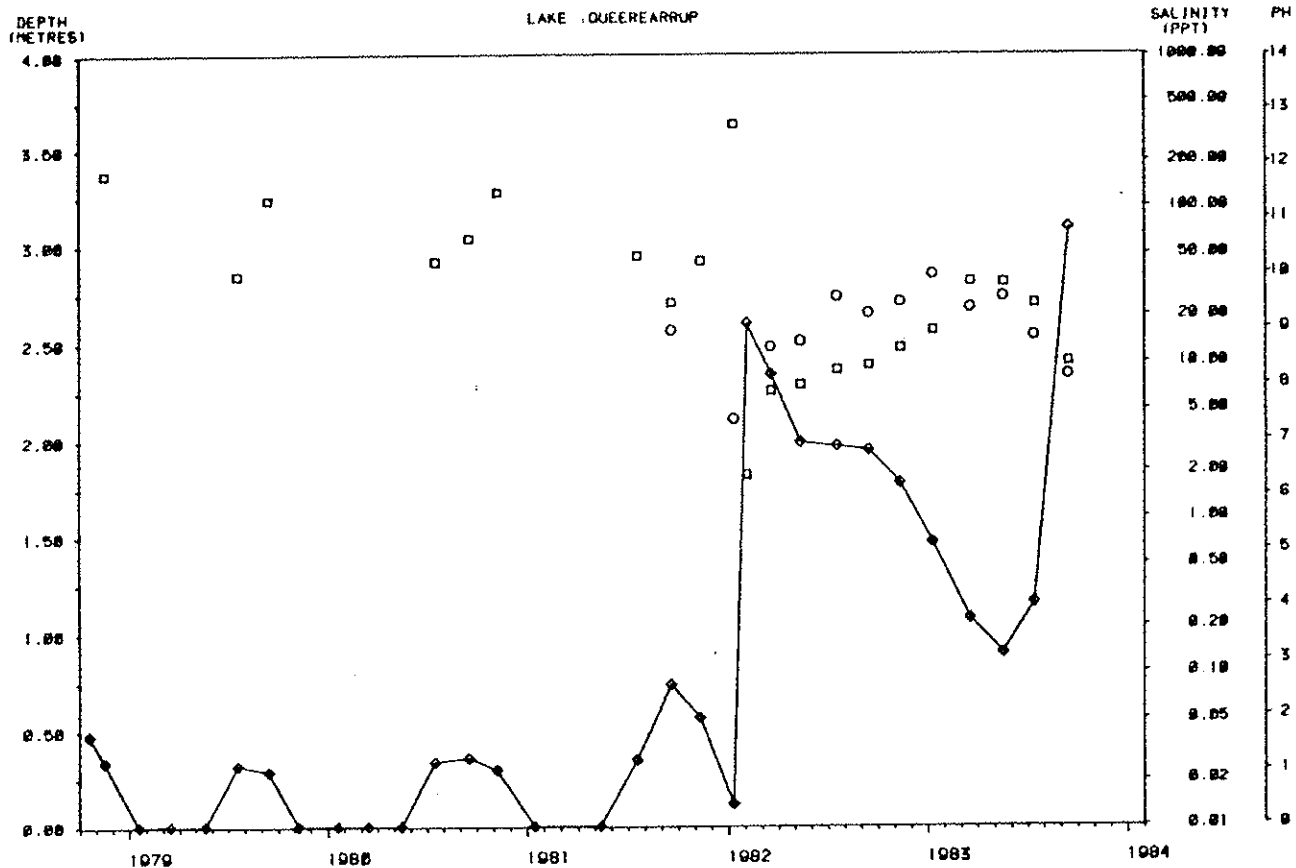
○ DEPTH □ SALINITY ● PH FACTOR

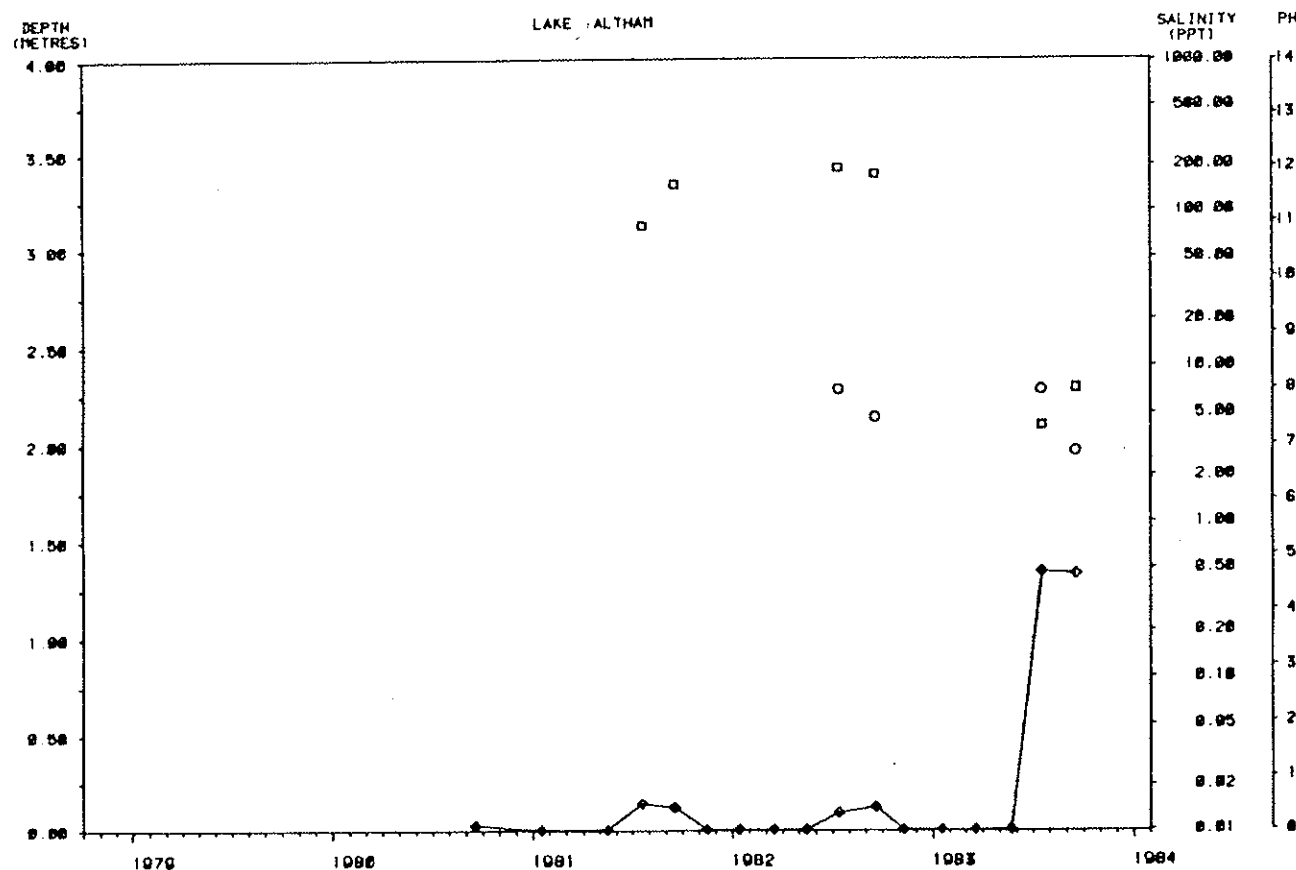
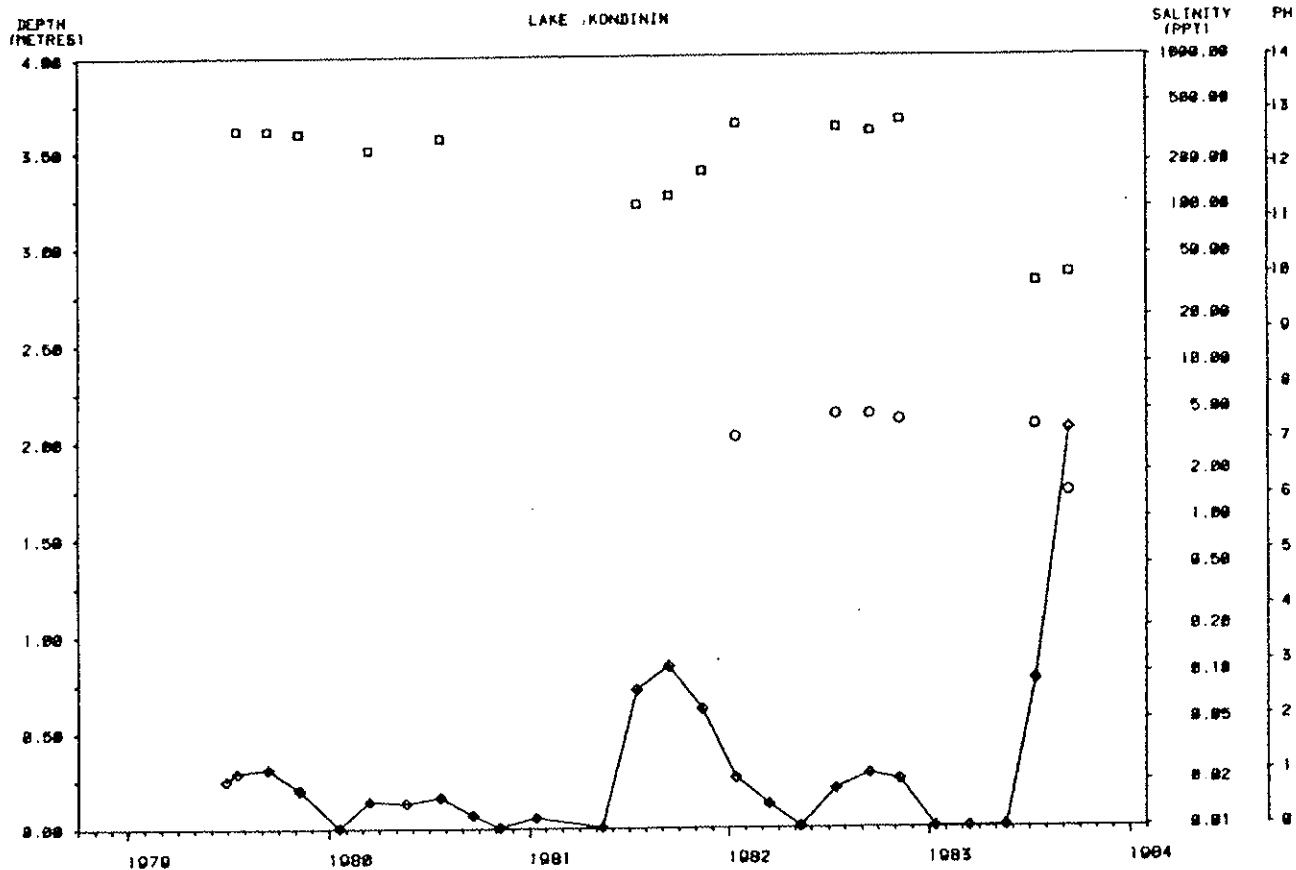
VA DEPT. FISHERIES + WILDLIFE
WATERBIRD RESEARCH



○ DEPTH □ SALINITY ○ PH FACTOR

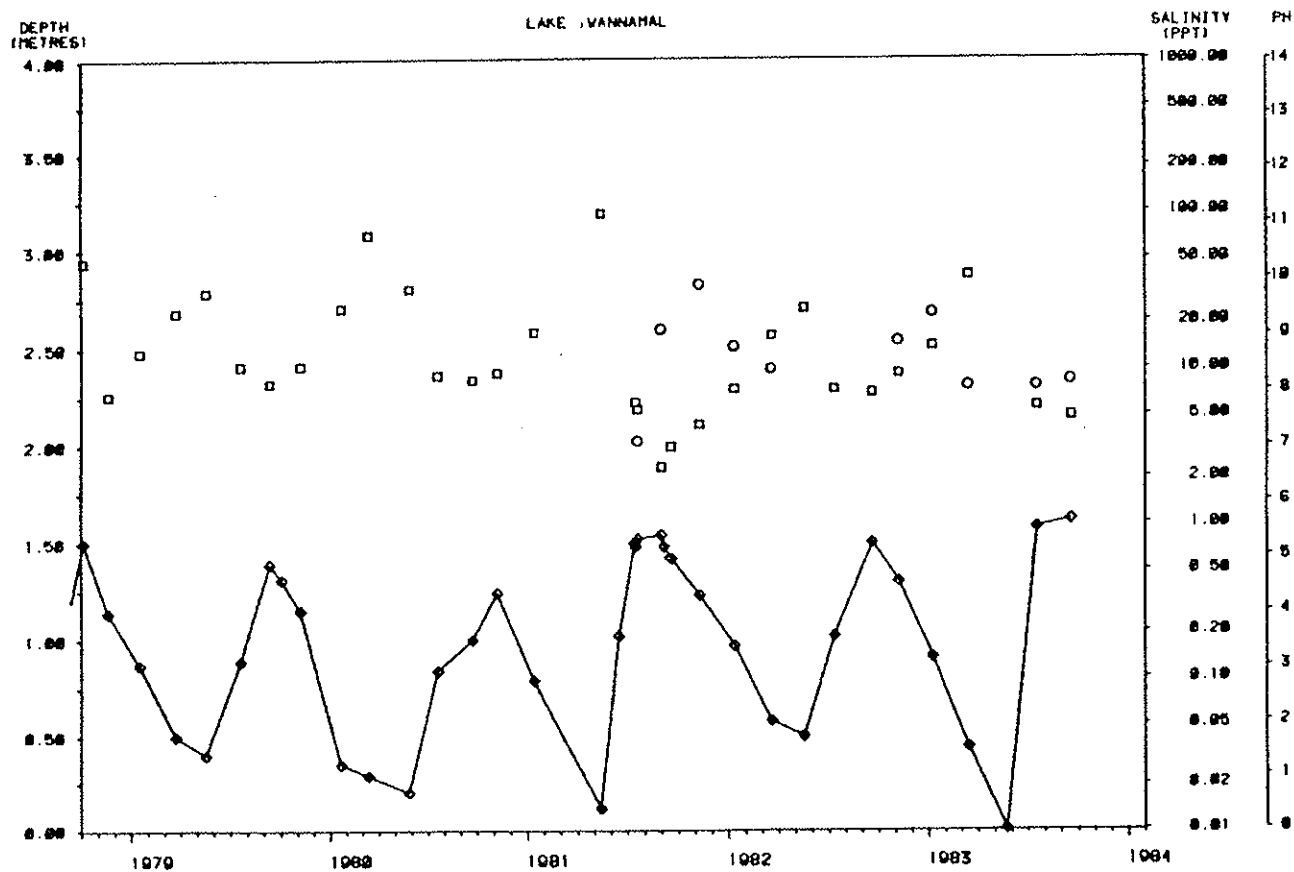
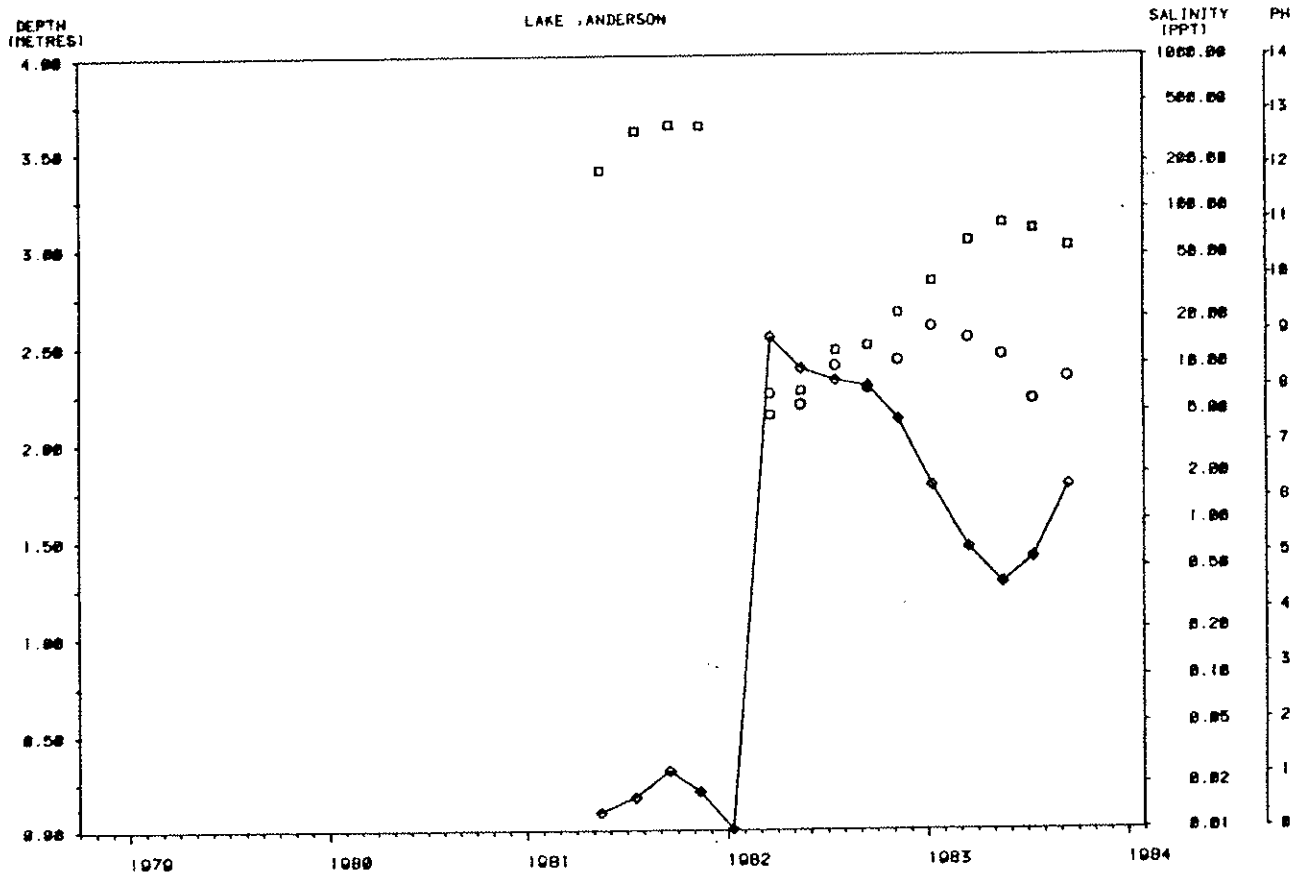
VA. DEPT. FISHERIES & WILDLIFE
WATERBIRD RESEARCH





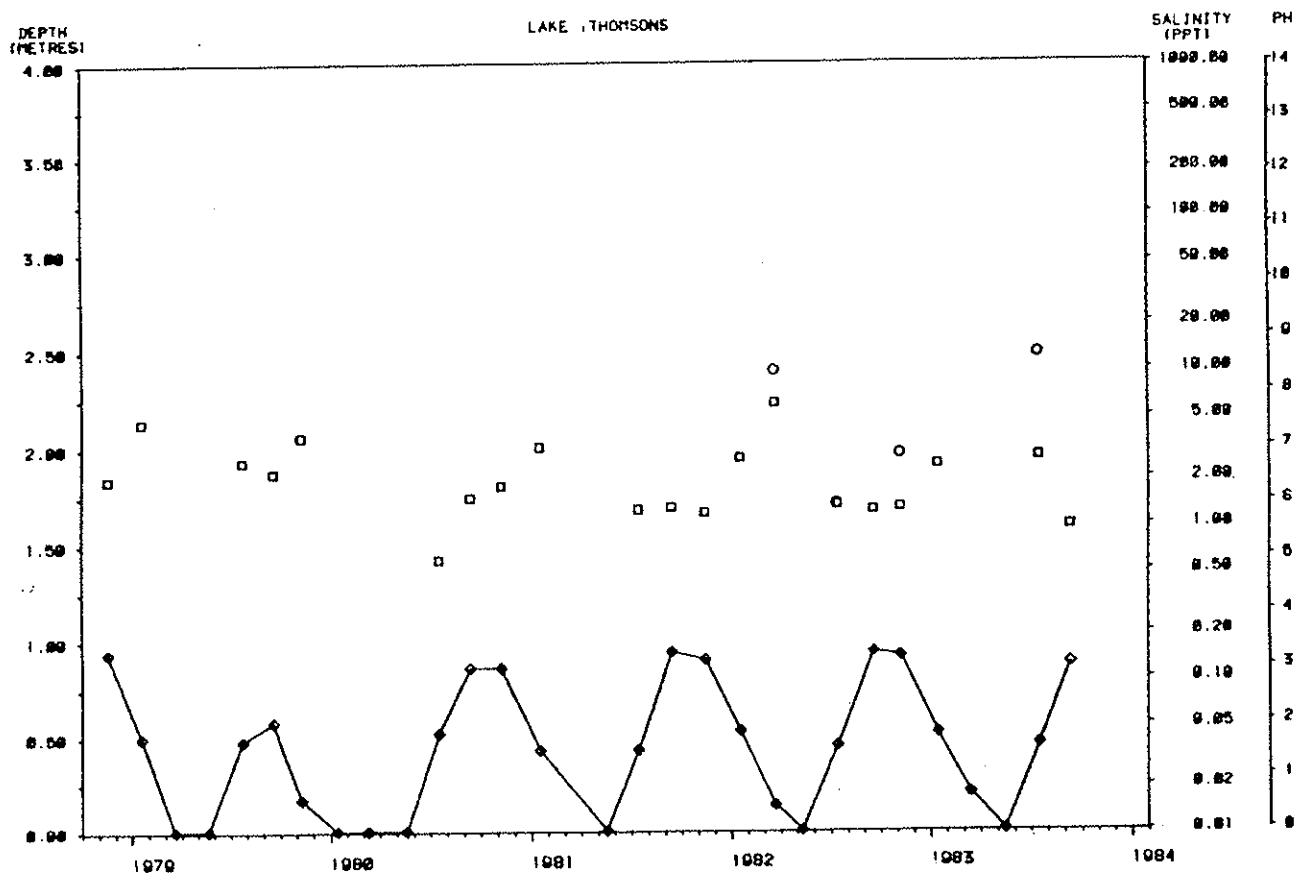
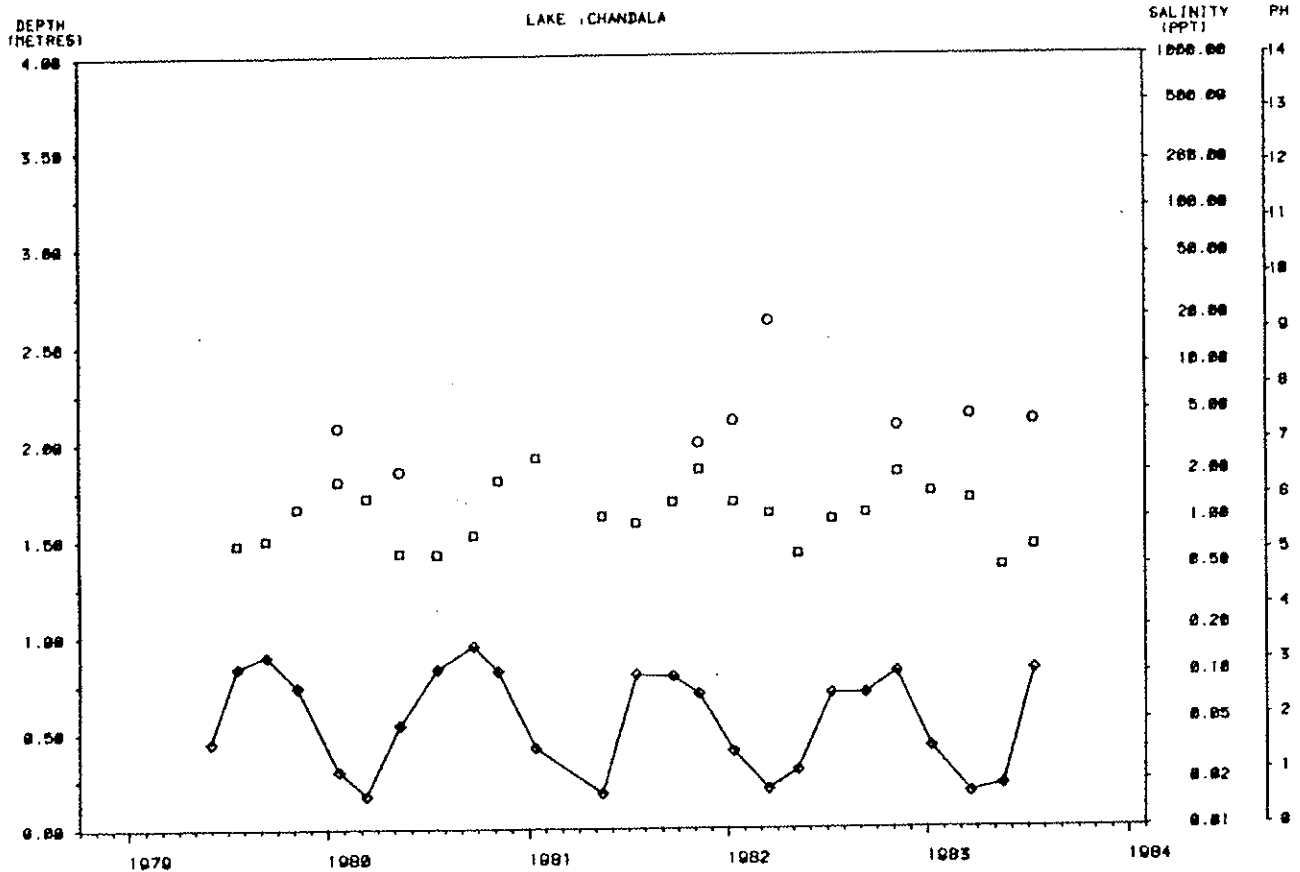
◇ DEPTH □ SALINITY ○ PH FACTOR

VA DEPT. FISHERIES + WILDLIFE
WATERBIRD RESEARCH



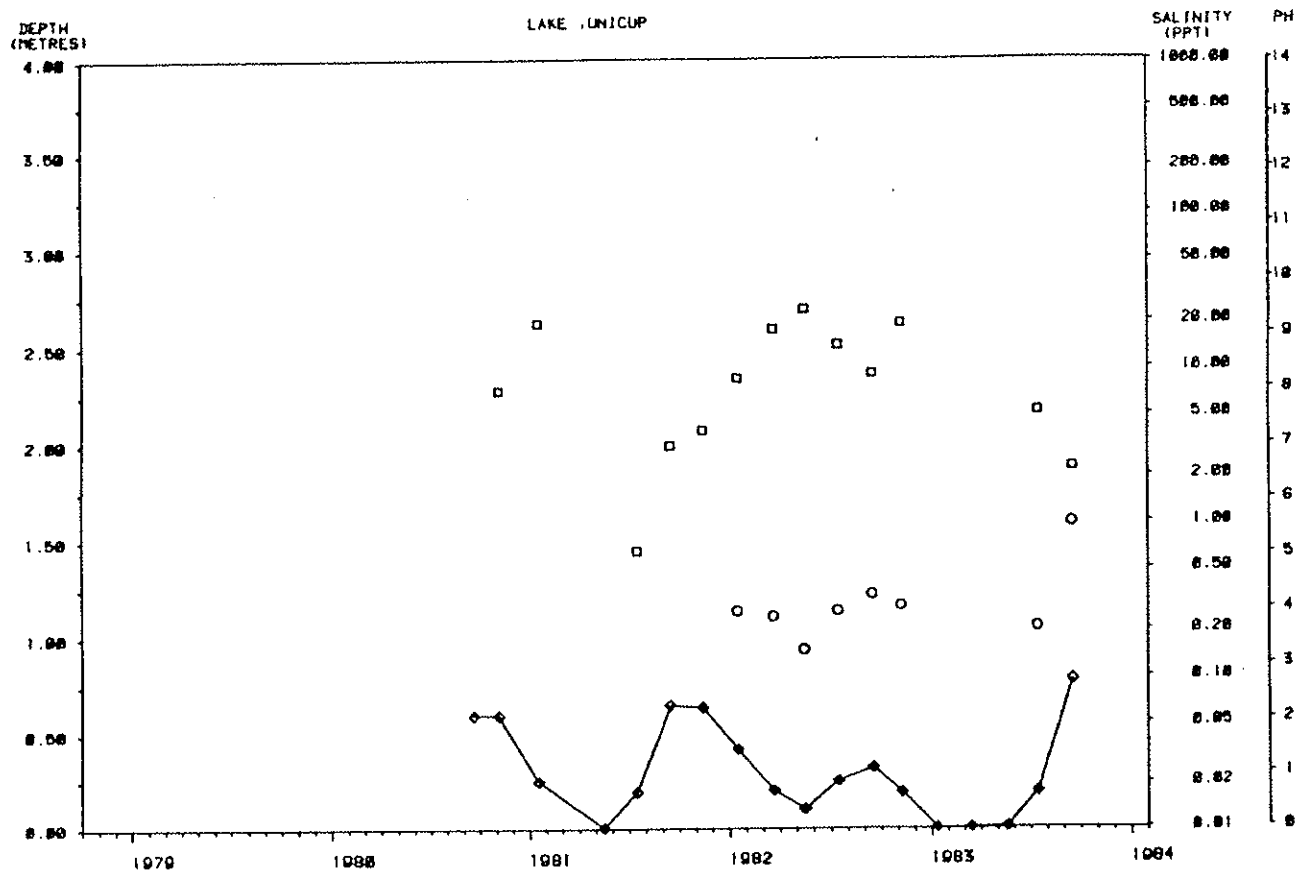
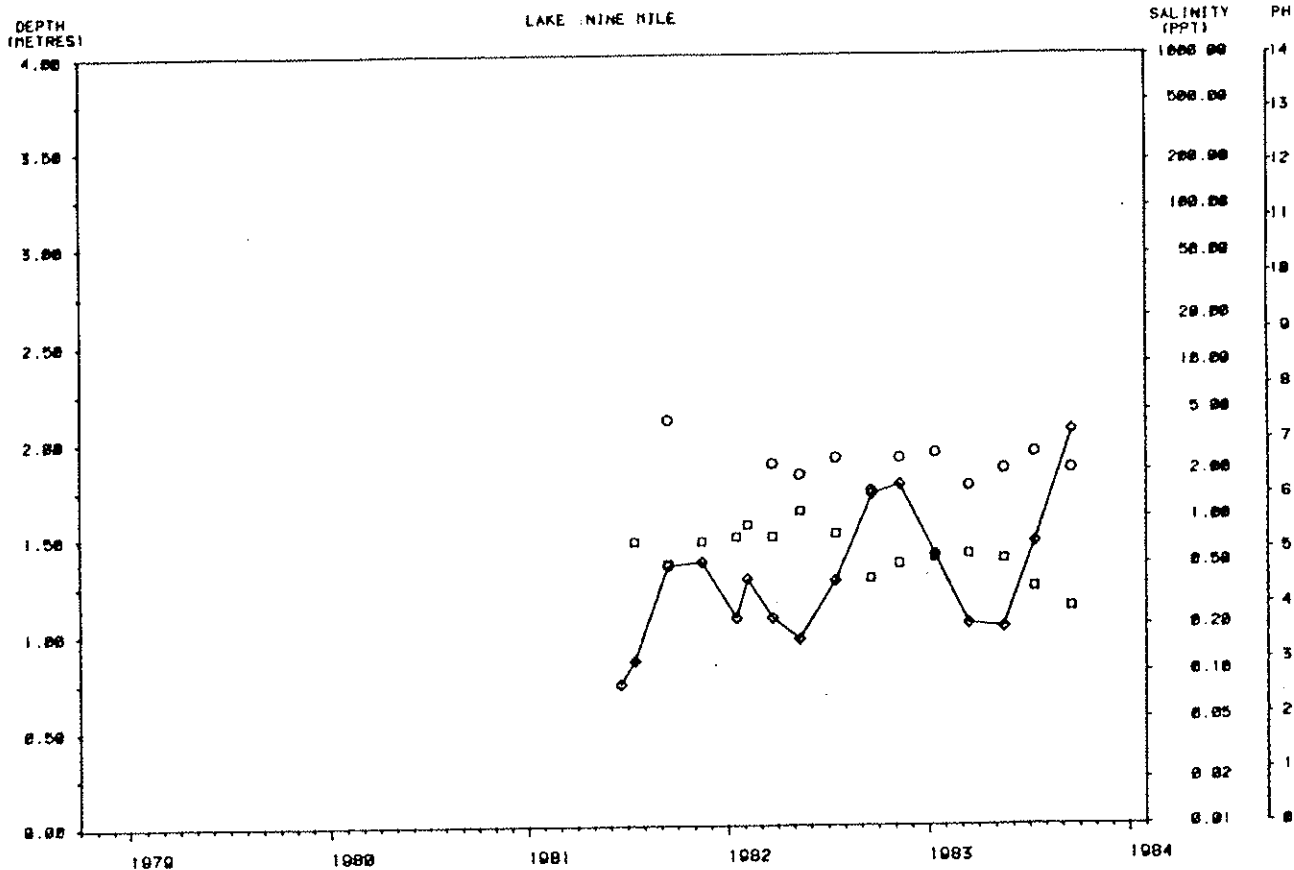
◇ DEPTH ◇ SALINITY ◇ PH FACTOR

VA DEPT. FISHERIES + WILDLIFE
WATERBIRD RESEARCH



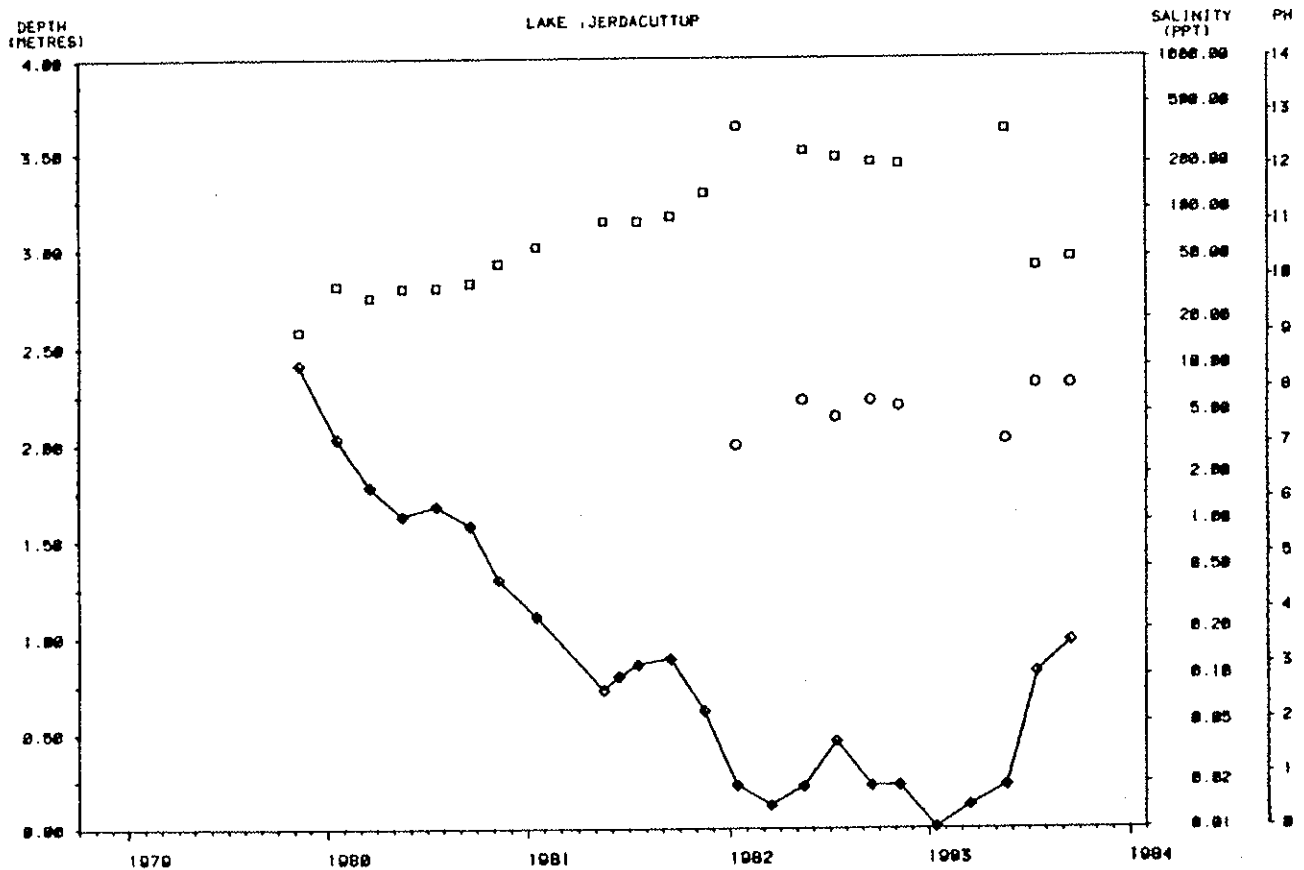
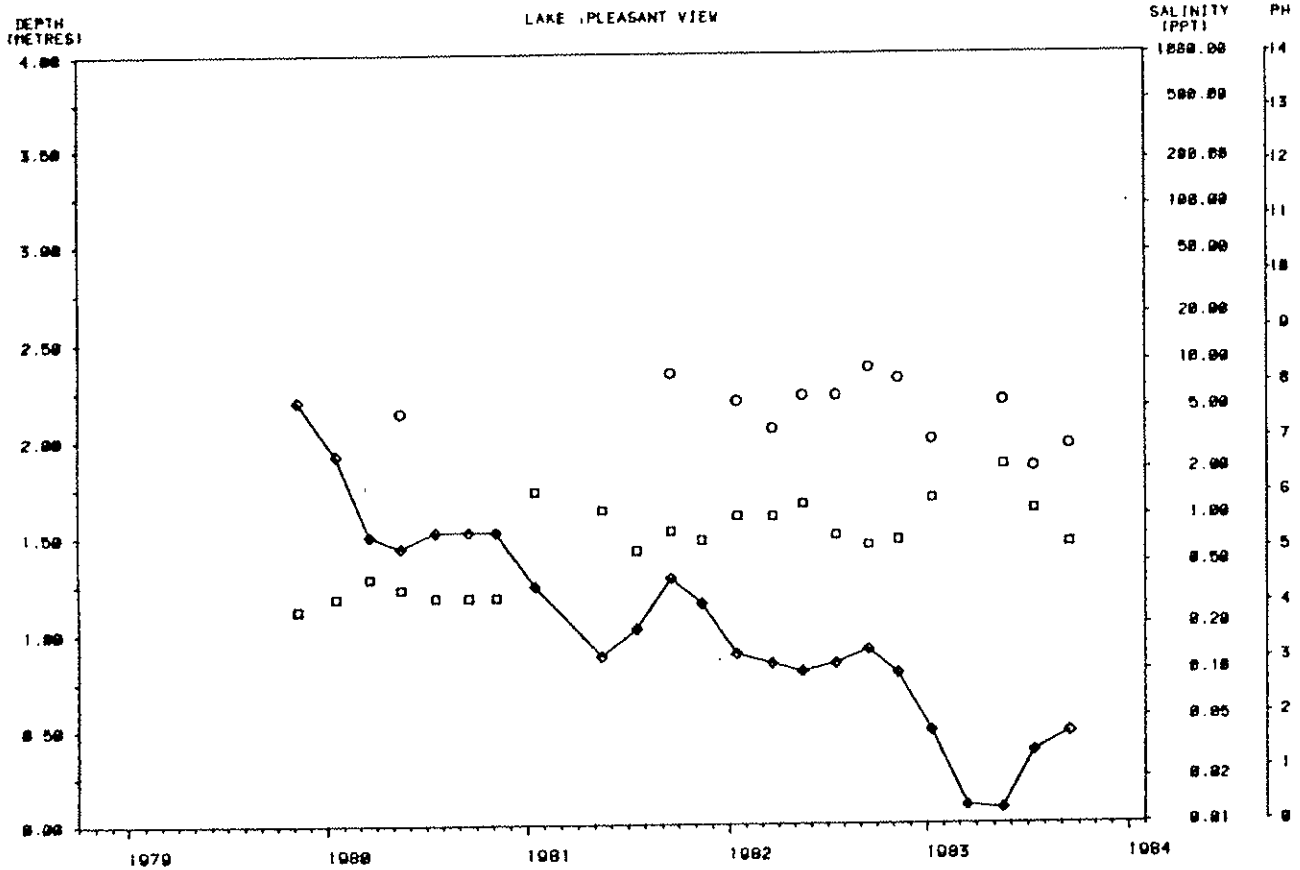
◇ DEPTH □ SALINITY ○ PH FACTOR

VA DEPT. FISHERIES + WILDLIFE
WATERBIRD RESEARCH



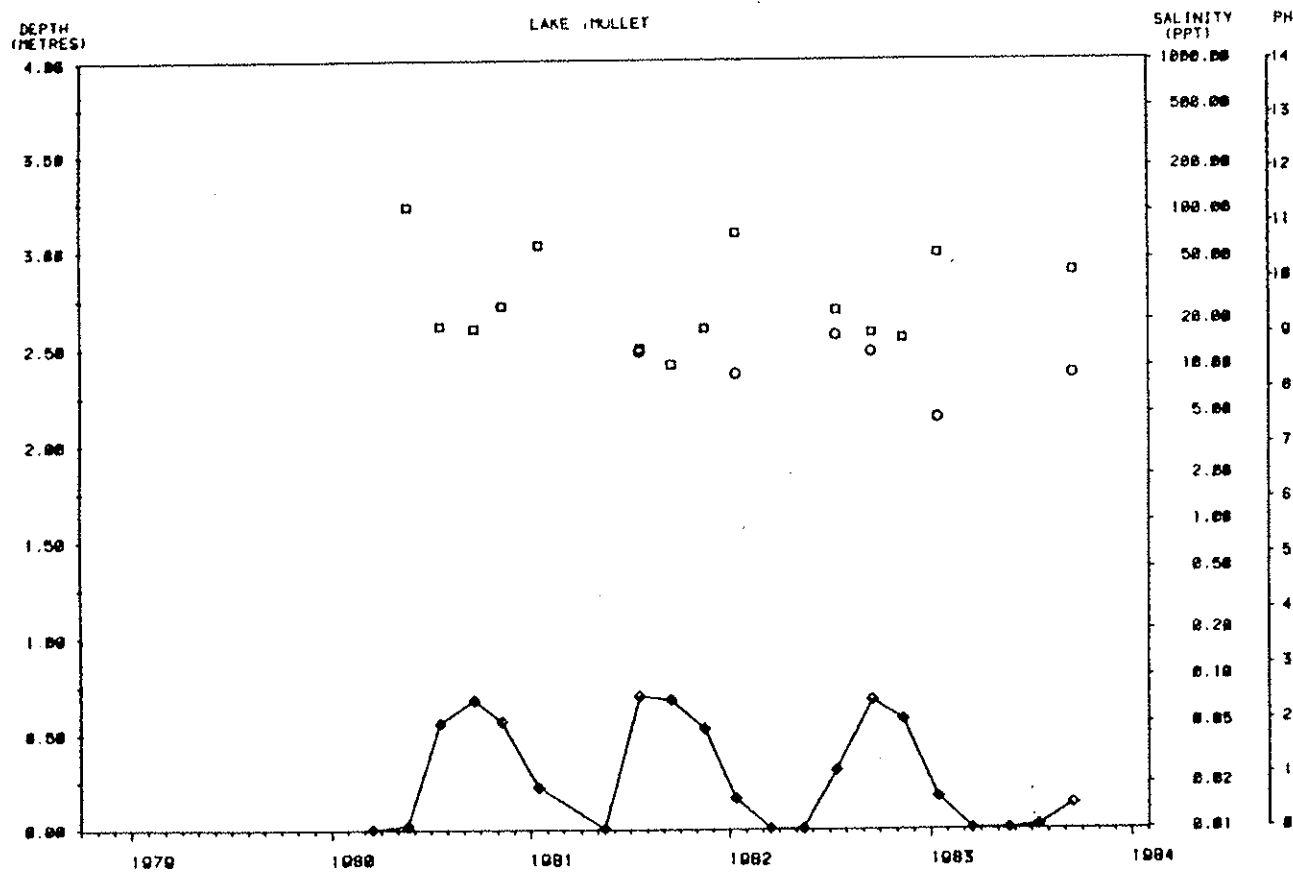
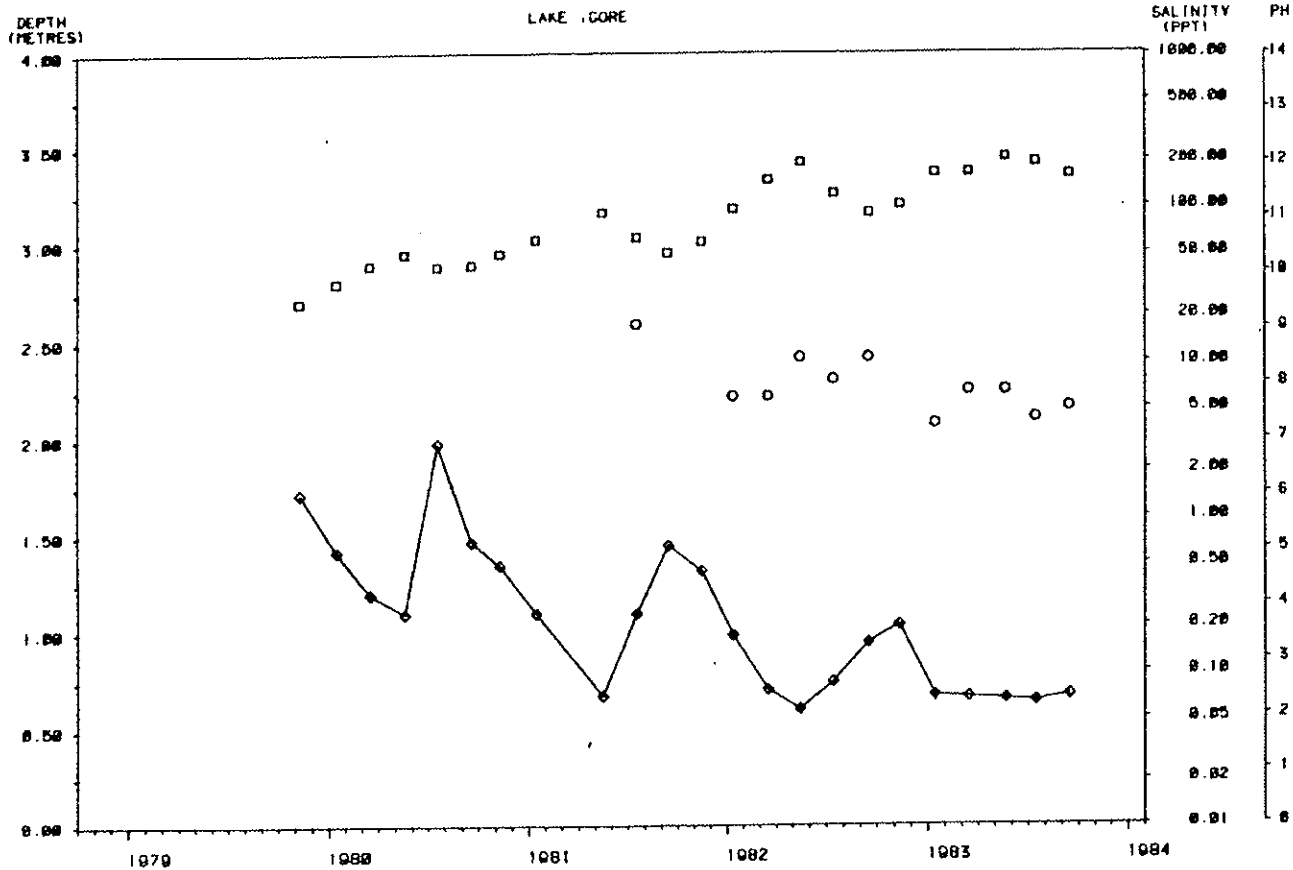
◇ DEPTH □ SALINITY ○ PH FACTOR

VA DEPT. FISHERIES - WILDLIFE
WATERBIRD RESEARCH



◇ DEPTH □ SALINITY ○ PH FACTOR

VA DEPT. FISHERIES & WILDLIFE
WATERBIRD RESEARCH



◇ DEPTH □ SALINITY ○ PH FACTOR

SUMMARY OF NOV. 1982 TO NOV. 1983 DEPTH CHANGES

OF 119 MONITORED WETLANDS

54 Increased in depth by more than 0.25 m.

12 Decreased in depth by more than 0.25 m.

53 Varied in depth by less than 0.25 m.

DEPTH INCREASES

NO OF WETLANDS

WETLAND NAMES

2.00 - 2.50 m

2

Dumbleyung, Coblinia

1.50 - 2.00 m

6

Logue, Kondinin, Bryde, White Water, Taatolin, White

1.00 - 1.50 m

9

0.50 - 1.00 m

12

DEPTH DECREASES

NO OF WETLANDS

WETLAND NAMES

0.50 - 1.00 m

5

Biddy, Anderson, Gnoweryung, Shark, Mullet

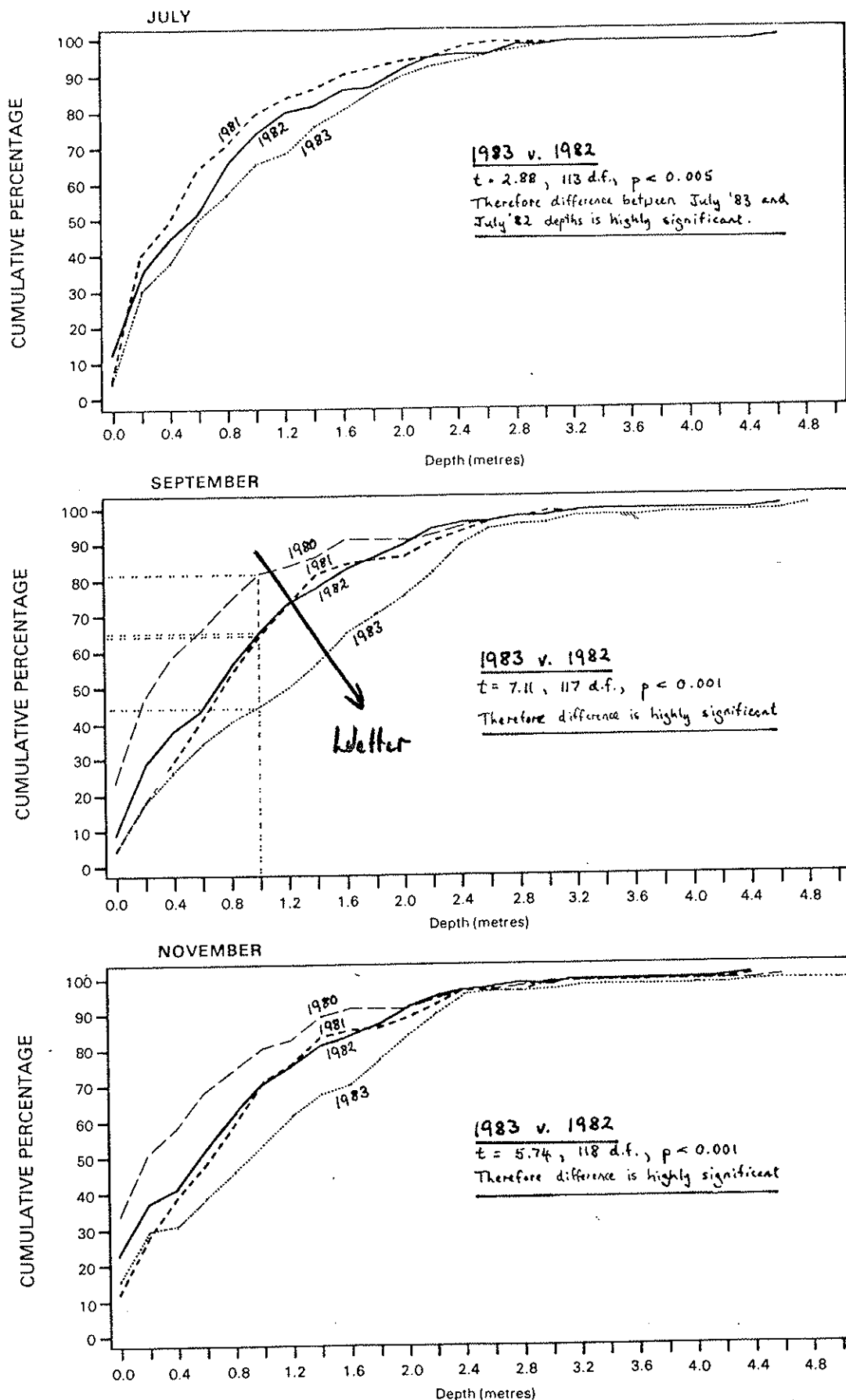


FIGURE 3. CUMULATIVE PERCENTAGES OF WETLAND DEPTHS

This figure shows, for example, that in September 1980 82% of monitored wetlands had depths of less than 1.0 m whereas in Septembers of 1981, 1982 and 1983 65%, 64% and 44% respectively were less than 1.0 m deep. Thus water levels of monitored wetlands were higher in September 1983 than in Septembers of preceding years.

Paired t -tests (two tail) show that depths recorded in July, September and November 1983 were significantly different from those recorded in 1982, the 1983 depths being greater.

STANDARDISED SEASONS

	<u>FULL SEASON</u>	<u>RESTRICTED SEASON</u>	<u>NO SEASON</u>
Opening Date	2nd weekend in January	2nd weekend in January	-
Opening Day	Saturday	Sunday	-
Opening Time*	6.00 <u>PM</u>	6.00 <u>AM</u>	-
Season Length	10 weeks	4 weeks	-
Bag Limit	10 birds of any game species	5 birds of any game species	-

* Western Standard Time

TABLE 1 : NOVEMBER DEPTHS OF MONITORED WETLANDS; 1978-1983.

Unnamed Wetlands are referred to by Shire and Reserve Number (eg.
Wetland No. 10 : Mt Marshall 26687)

WET- LAND No.	WETLAND NAME	DEPTH (metres)						MAXIMUM RECORDED NOV-JAN DEPTH DECREASE *
		NOV 1978	NOV 1979	NOV 1980	NOV 1981	NOV 1982	NOV 1983	
1	YARRA YARRA				0.09	<0.10	DRY	-
2	LOGUE		DRY	DRY	1.55	0.48	2.00	0.65
3	CAPAMAURA			DRY	0.70	DRY	0.55	0.47
4	EGANU	1.78	0.20	DRY	2.28	2.00	2.33	0.46
5	PINJARREGA		1.10	DRY	2.14	0.85	2.13	0.55
6	STREETS	0.04	DRY	DRY	1.21	0.12	1.23	0.48
7	HINDS		DRY	DRY	1.00	<0.20	1.34	0.39
8	NINAN	0.25	0.23	DRY	1.96	0.78	2.13	0.58
9	MOLLERIN			DRY	<0.01	DRY	DRY	-
10	MT MARSHALL 26687				0.03	DRY	DRY	-
11	WALYORMOURING	0.03	0.03	DRY	0.51	<0.08	0.63	0.41
12	CAMPION		DRY	DRY	0.65	0.21	DRY	0.57
13	NOONYING		0.85	DRY	1.18	0.48	1.19	0.48
14	BRUCE ROCK 30969					1.07	1.02	0.26
15	DOBADERRY			DRY	0.49	0.14	0.58	0.49
16	BEVERLEY	1.65	0.63	0.24	1.70	1.24	1.63	0.50
17	MEARS	1.74	0.72	DRY	1.00	0.66	2.03	0.54
18	NONALLING		DRY	0.88	0.75	0.71	0.77	0.43
19	WHITE WATER				1.08	DRY	1.70	-
20	BROWN		<0.16	DRY	1.46	0.65	1.75	0.49
21	YEALERING	1.67	0.56	0.32	1.94	1.61	2.15	0.56
22	DULBINNING		DRY	DRY	0.70	0.37	0.71	0.37
23	TOOLIBIN	DRY	DRY	DRY	1.35	1.05	1.93	0.15
24	WALBYRING		DRY	DRY	0.37	0.60	0.96	0.37
25	TAARBLIN	DRY	DRY	DRY	<0.08	DRY	2.00	-
26	BOKAN		DRY	0.02	0.39	0.20	1.34	0.39
27	WHITE NARROGIN				0.05	DRY	1.88	-
28	LITTLE WHITE		DRY	0.47	0.81	0.81	1.30	0.33
29	KWOBRUP		0.14	DRY	DRY	0.71	1.06	0.35
30	COYRECUP	1.00	DRY	<0.13	0.35	1.89	2.24	0.35
31	CASUARINA	DRY	DRY	<0.49	0.90	0.60	0.94	0.40
32	COOMELBERRUP	0.53	DRY	DRY	0.36	0.89	1.27	0.36
33	COBLININE		0.91	1.27	1.21	2.60	5.06	0.39
34	DUMBLYUNG		<0.13	0.13	0.25	2.00	4.46	0.35
35	GUNDARING	0.82	0.48	0.67	0.95	1.65	2.12	0.48
36	WAGIN 2088					0.55	1.20	0.52
37	PARKEYERRING	0.49	DRY	<0.10	0.60	1.28	1.84	0.43
38	FLAGSTAFF		DRY	0.14	0.26	0.64	1.62	0.33
39	WARDERING	0.82	0.24	0.66	0.99	0.70	1.02	0.40
40	QUEEREARRUP	0.34	DRY	0.30	0.57	1.78	2.34	0.34
41	MIRIPIN				0.43	0.66	1.06	0.35
42	MURAPIN				0.18	1.01	1.15	0.28
43	MARTINUP		DRY	0.24	0.33	1.34	1.72	0.34
44	WEST ARTHUR 5456			DRY	0.80	0.51	0.82	0.35
45	TOWERINNING	1.69	0.81	0.54	1.10	3.14	3.40	0.51
46	RED BRUCE ROCK				0.04	DRY	DRY	-
47	CORRIGIN 12900					0.19	1.20	-
48	KONDININ		0.20	DRY	0.62	0.25	1.99	0.36
49	GOUNTER			DRY	0.10	0.10	DRY	-
50	VARLEY				DRY	DRY	DRY	-
51	ACE			DRY	<0.02	DRY	DRY	-
52	PALLARUP			DRY	<0.07	DRY	DRY	-
53	BIDDY					0.74	<0.09	0.46
54	KENT 29020			DRY	DRY	DRY	DRY	-
55	BRYDE		DRY	DRY	DRY	DRY	1.54	-
56	ALTHAM				DRY	DRY	1.07	-
57	CAIRLOCUP			DRY	DRY	DRY	DRY	-
58	YAALUP					1.28	1.69	0.34

* Allows prediction of possible depth at commencement of 1984 Duck Shooting Season (ie. second weekend of January 1984)

TABLE 1 - cont'd...

WET- LAND NO.	WETLAND NAME	DEPTH (metres)						MAXIMUM RECORDED NOV-JAN DEPTH DECREASE (metres)
		NOV 1978	NOV 1979	NOV 1980	NOV 1981	NOV 1982	NOV 1983	
59	GNOWANGERUP 26569					DRY	0.16	-
60	GNOWANGERUP 26264			0.07	DRY	0.84	0.10	0.45
61	ANDERSON				0.20	2.12	1.61	0.34
62	CAMEL			0.19	DRY	0.17	0.14	-
63	CRANBROOK 25812			0.20	0.06	0.02	0.11	-
64	ENEMINGA			DRY	2.42	1.39	2.52	0.39
65	GURAGA					2.14	2.40	0.38
66	CRACKERS			DRY	0.05	DRY	0.96	-
67	KARAKIN		0.55	0.82	0.98	0.72	0.92	0.82
68	WANNAMAL	1.14	1.15	1.24	1.23	1.30	1.32	0.45
69	YURINE		1.01	0.66	2.20	1.42	1.75	0.60
70	GINGIN 31241		2.08	2.14	2.07	2.03	2.01	0.60
71	BAMBUN		2.27	2.31	2.32	2.26	2.35	0.50
72	NAMBUNG		DRY	0.07	0.49	0.20	0.37	0.41
73	MUNGALA		0.10	0.12	0.70	0.29	0.57	0.45
74	WALLERING				0.97	0.47	0.96	0.47
75	CHANDALA		0.74	0.82	0.70	0.81	0.79	0.44
76	CHITTERING	1.39	1.38	1.45	1.31	1.42	1.42	0.45
77	TWIN SWAMPS		DRY	DRY	DRY	DRY	DRY	-
78	ELLEN BROOK		0.12	0.28	0.18	0.10	0.13	0.28
79	JANDABUP	1.35	1.25	1.22	1.27	1.15	1.12	0.39
80	JOONDALUP	3.01	2.87	2.88	2.92	3.03	3.02	0.35
81	THOMSONS	0.94	0.17	0.86	0.90	0.92	0.78	0.44
82	FORRESTDALE	0.92	0.30	0.79	0.93	0.64	0.76	0.47
83	MURRAY 24739			0.57	0.32	0.41	0.45	0.57
84	NINE MILE				1.37	1.77	1.96	0.36
85	HARVEY 12632			1.16	1.08	1.47	1.38	0.52
86	WILD HORSE				0.21	1.17	0.92	0.30
87	BOYUP BROOK 18239			<0.05	DRY	DRY	0.65	-
88	UNICUP			0.60	0.64	0.19	0.94	0.35
89	RED MANJIMUP				0.29	DRY	0.02	0.28
90	MUIR		0.14	0.17	0.52	<0.02	0.42	0.26
91	BYENUP	2.40	2.27	2.14	2.38	2.12	2.33	0.36
92	TORDIT-GARRUP	3.15	2.91	2.75	2.88	2.65	2.49	0.29
93	POORGINUP	0.55	0.53	0.55	0.54	0.44	0.50	0.24
94	YARNUP			0.80	0.94	0.80	0.94	0.22
95	WARRINUP			0.21	0.12	DRY	0.14	-
96	KWORNICUP		0.41	0.26	0.39	<0.09	0.14	0.33
97	POWELL				0.96	0.94	0.69	0.23
98	PLANTAGENET 25386		0.73	0.48	0.41	0.51	0.38	0.73
99	WHITE ALBANY				0.23	<0.09	DRY	0.18
100	ALBANY 26385				0.84	0.64	<0.35	0.22
101	PLEASANT VIEW		2.20	1.52	1.15	0.79	0.46	0.30
102	ANGOVE				1.81	1.81	2.11	0.12
103	MOATES		4.44	4.51	4.32	4.22	4.26	0.46
104	GARDNER				2.08	2.00	2.03	0.17
105	ALBANY 27157			1.10	0.84	0.77	0.59	0.23
106	METTLER					0.44	0.11	0.21
107	JERDACUTTUP		2.41	1.30	0.62	0.43	0.78	0.38
108	SHASTER		1.04	0.17	0.20	DRY	0.20	0.37
109	ESPERANCE 21640				DRY	DRY	DRY	-
110	GORE		1.72	1.35	1.32	1.04	0.58	0.36
111	SHARK		2.40	2.25	2.29	2.22	1.66	0.32
112	WARDEN		1.53	<0.84	0.66	0.40	<0.19	0.35
113	MULLET			0.57	0.53	0.58	0.05	0.41
114	CRONIN				0.18	DRY	DRY	-
115	DUNDAS 33113		0.34			DRY	DRY	-
116	ESPERANCE 27768				DRY	DRY	DRY	-
117	ESPERANCE 27985				DRY	DRY	DRY	-
118	ESPERANCE 32776				DRY	DRY	DRY	-
119	ESPERANCE 32128					DRY	DRY	-

W.A. DEPARTMENT OF FISHERIES AND WILDLIFE
WETLAND MONITORING PROGRAMME

Routine monitoring dates have been selected as follows:

January, March, May, July, September.

Monitoring is undertaken during the nine-day period commencing on the second Saturday of the month. Thus two full weekends are provided for amateurs (plus the five days in between).

November

Monitoring is undertaken during the nine-day period commencing on the first Saturday of the month. (To fit in with timetable for Duck Season decisions). Note that in November 1978 (i.e. the commencement of the programme) monitoring was undertaken approximately one week later than in succeeding years.

Routine monitoring dates for 1978-1984 are as follows:

	1978	1979	1980	1981	1982	1983	1984
JANUARY		13-21	12-20	10-18	9-17	8-16	14-22
MARCH		10-18	8-16	14-22	13-21	12-20	10-18
MAY		12-20	10-18	9-17	8-16	14-22	12-20
JULY		14-22	12-20	11-19	10-18	9-17	14-22
SEPTEMBER		8-16	13-21	12-20	11-19	10-18	8-16
NOVEMBER	13-20	3-11	1- 9	7-15	6-14	5-13	3-11

Note that January monitoring periods coincide with scheduled "Opening" dates for annual duck shooting seasons in the South West and Eucla Land Divisions of the State. These opening dates are as follows:

		1980	1981	1982	1983	1984
OPENING DATES (JAN)		12 or 13	10 or 11	9 or 10	8 or 9	14 or 15
CLOSING DATES	4-week Season	Feb 10	Feb 8	Feb 7	Feb 6	Feb 12
	10-week Season	Mar 23	Mar 22	Mar 21	Mar 20	Mar 25

D. MUNRO

JANUARY 1983.