TABLE A4.17 Analyses of Environmental Variables for all Non-Transect Sightings at Transect Sites (NTTS) (i.e Area of the Bay, Season and Tidal State).

Table A4.17a: Distribution of sighting events across quadrants of the Bay, adjusted for the different areas of each quadrant, chi-square = 4.576, $df = 3$ and $P > 0.05$.

	Quadrant			
	SW	NW	NE	SE
Observed	4	11	5	3
Expected	6.21	6.44	4.83	5.52

Table A4.17b: A *t*-test indicated no significant difference in the mean number of dolphins, across the north or south of the Bay. Pooled variances $t = 1.003$, $df = 21$ and $P = 0.327$. Power = 0.17.

Half of Bay	**N**	**Mean**	**SD**
North	16	17.3	11.9
South	7	12.1	9.4

Table A4.17c: No association was indicated between the total number of animals per sighting divided into small (1-10) or large (11+) size classes and north or south of the Bay, by Fisher's Exact test $P = 0.65$.

	Half of Bay		
Sighting Size	North	South	**Total**
Small	6	4	10
Large	10	3	13
Total	16	7	23

Table A4.17d: No association was indicated between the number of pods per sighting across the north or south of the Bay, by Fisher's Exact test $P = 0.169$.

	Half of Bay		
Number of Pods	North	South	**Total**
1	11	2	13
2+	5	5	10
Total	16	7	23

Table A4.17e: A *t*-test indicated no significant difference in the mean number of dolphins per pod, across the north or south of the Bay. Pooled variances $t = 1.659$, $df = 34$ and $P = 0.106$. Power = 0.41.

Half of Bay	**N**	**Mean**	**SD**
North	24	11.5	8.6
South	12	7.1	4.8

Table A4.17f: No association was indicated between the size of pods divided into small (1-10) or large (11+) size classes and the north or south of the Bay, by Fisher's Exact test $P = 0.438$.

	Half of Bay		
Pod Size	North	South	**Total**
Small	16	10	26
Large	8	2	10
Total	24	12	36

Table A4.17g: No association was indicated between the presence or absence of calves per sighting and the north or south of the Bay, by Fisher's Exact test $P = 0.109$.

	Half of Bay		
	North	South	**Total**
Calves			
Absent	4	5	9
Present	12	2	14
Total	16	7	23

Table A4.17h: Distribution of sighting events across seasons with the expected value based on the unequal distribution of survey effort (see Table A4.3c), chi-square = 2.92, *df* = 3 and $P > 0.05$.

	Season			
	AUT	SPR	SUM	WIN
Observed	15	1	3	4
Expected	11.11	2.37	4.76	4.76

Table A4.17i: A one-factor Analysis of Variance of the total number of dolphins per sighting event, $n = 23$, across season indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	3	100.71	0.773	0.523
Error	19	130.25		

Table A4.17j: No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes across seasons, by Likelihood ratio chi-square =1.938, *df* = 3 and *P* = 0.585.

	Season				
	AUT	SPR	SUM	WIN	**Total**
Sighting Size					
Small	6	0	2	2	10
Large	9	1	1	2	13
Total	15	1	3	4	23

Table A4.17k: No association was indicated between the number of pods per sighting event and season, by Pearson chi-square = 2.043, *df* = 3 and *P* = 0.485.

	Season				
	AUT	SPR	SUM	WIN	**Total**
Number of Pods					
1	8	0	2	3	13
2+	7	1	1	1	10
Total	15	1	3	4	23

Table A4.17l: A one-factor Analysis of Variance of the total number of dolphins per pod, *n* = 36, across season indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	3	29.01	0.465	0.709
Error	32	62.44		

Table A4.17m: No association was indicated between pod size, divided into small (1-10) or large (11+) size classes and season, by Pearson chi-square = 1.694, *df* = 3 and *P* = 0.638.

	Season				
	AUT	SUM	SPR	WIN	**Total**
Pod Size					
Small	17	3	2	4	26
Large	8	1	0	1	10
Total	25	4	2	5	36

Table A4.17n: No association was indicated between the presence or absence of calves and season, by Likelihood ratio chi-square = 5.074, *df* = 3 and *P* = 0.166.

	Season				
	AUT	SPR	SUM	WIN	**Total**
Calves					
Absent	4	1	1	3	9
Present	11	0	2	1	14
Total	15	1	3	4	23

Table A4.17o: Distribution of sighting events across tidal state, chi-square = 2.905, *df* = 3 and *P* > 0.05.

	Tidal State			
	High	Ebb	Flood	Low
Observed	4	7	6	6
Expected	5.75	5.75	5.75	5.75

Table A4.17p: A one-factor Analysis of Variance of the total number of dolphins per sighting event, *n* = 23, across tidal state indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Tide	3	228.23	2.073	0.138
Error	19	110.11		

Table A4.17q: An association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and tidal state, by Likelihood ratio chi-square = 8.866, *df* = 3 and *P* = 0.031.

	Tidal State				
Sighting Size	High	Ebb	Flood	Low	**Total**
Small	0	4	4	2	10
Large	4	3	2	4	13
Total	4	7	6	6	23

Table A4.17r: No association was indicated between the number of pods per sighting and tidal state, by Pearson chi-square =3.138, *df* = 3, and *P* = 0.371.

	Tidal State				
Number of Pods	High	Ebb	Flood	Low	**Total**
1	2	4	5	2	13
2+	2	3	1	4	10
Total	4	7	6	6	23

Table A4.17s: A one-factor Analysis of Variance of the total number of dolphins per pod, *n* = 36, across tidal state indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Tide	3	67.57	1.149	0.344
Error	32	58.821		

Table A4.17t: An association was indicated between the size of pods sighted divided into small (1-10) or large (11+) size classes and tidal state, by Likelihood ratio chi-square = 9.412, $df = 3$ and $P = 0.024$.

	Tidal State				
Pod Size	High	Ebb	Flood	Low	**Total**
Small	3	9	6	8	26
Large	3	2	1	4	10
Total	6	11	7	12	36

Table A4.17u: An association was indicated between the presence or absence of calves and tidal state, by Likelihood ratio chi-square = 10.276, $df = 3$ and $P = 0.016$.

	Tidal State				
Calves	High	Ebb	Flood	Low	**Total**
Absent	3	2	4	0	9
Present	1	5	2	6	14
Total	4	7	6	6	23

TABLE A4.18 Analyses of Environmental Variables for all Non-Transect Sightings at Transect Sites (NTTS) (i.e. Time of Day, Wind Direction and Sea Surface Temperature).

Table A4.18a: Distribution of sighting events across time of day categories with the expected value based on the uneven distribution of survey sampling (see Table A4.3e), chi-square = 0.570, $df = 2$ and $P > 0.05$.

	Time of Day		
	Morning	Midday	Afternoon
Observed	7	14	2
Expected	7.9	12.3	2.8

Table A4.18b: A one-factor Analysis of Variance of the total number of dolphins per sighting event, $n = 23$, across three categories of time of day (i.e. morning, 0600-1000, midday 1000-1400 and afternoon (1400+) indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Time of Day	3	74.15	0.564	0.578
Error	20	131.43		

Table A4.18c: No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and time of day, by Fisher's Exact test $P = 1.000$.

	Time of Day		
Sighting Size	Morning	Midday	**Total**
Small	3	5	8
Large	4	9	13
Total	7	14	21

Table A4.18d: No association was indicated between the number of pods per sighting event and time of day, by Fisher's Exact test $P = 0.159$.

	Time of Day		
Number of Pods	Morning	Midday	**Total**
1	2	10	12
2+	5	4	9
Total	7	14	21

Table A4.18e: A one-factor Analysis of Variance of the total number of dolphins per pod, $n = 36$, across three categories of time of day (i.e. morning, 0600-1000, midday 1000-1400 and afternoon (1400+) indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Time of Day	2	52.12	0.868	0.429
Error	33	60.02		

Table A4.18f: No association was indicated between pod size i.e. the total number of animals recorded per pod, divided into small (1-10) or large (11+) size classes, and time of day, by Fisher's Exact test $P = 0.71$.

	Time of Day		
Pod Size	Morning	Midday	**Total**
Small	9	14	23
Large	3	7	10
Total	12	21	33

Table A4.18g: No association was indicated between the presence or absence of calves and time of day, by Fisher's Exact test $P = 1.0$.

	Time of Day		
Calves	Morning	Midday	**Total**
Absent	3	5	8
Present	4	9	13
Total	7	14	21

Table A4.18h: A one-factor Analysis of Variance of the total number of dolphins per sighting event, $n = 23$, across wind direction at the time of the sighting indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Wind Direction	4	155.62	1.30	0.307
Error	18	119.69		

Table A4.18i: No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and wind direction, by Pearson chi-square = 4.550, $df = 4$ and $P = 0.208$.

	Wind Direction				
Sighting Size	N	S	E	W	**Total**
Small	5	1	2	1	9
Large	2	4	2	4	12
Total	7	5	4	5	21

Table A4.18j: No association was indicated between the number of pods per sighting event and wind direction, by Likelihood ratio chi-square = 1.301, *df* = 3 and *P* = 0.729.

	Wind Direction				
	N	S	E	W	**Total**
Number of Pods					
1	5	2	2	3	12
2+	2	3	2	2	9
Total	7	5	4	5	21

Table A4.18k: A one-factor Analysis of Variance of the total number of dolphins per pod, *n* = 36, across wind direction at the time of the sighting indicated a significant result and data were homoscedastic (i.e. Cochran's test critical *C* = 0.54 at *P* = 0.05 > observed *C* = 0.28).

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Wind Direction	4	134.96	2.71	0.048
Error	31	49.84		

Table A4.18l: The Peritz multiple comparison procedure for the mean number of dolphins per pod across wind direction, where alpha = 0.05, **S** indicates a significant result, and NS a non-significant result.

Wind Direction	**North**	**East**	**South**	**West**	**Nil**
North	-	NS	NS	**S**	NS
East	-	-	NS	**S**	NS
South	-	-	-	**S**	NS
West	-	-	-	-	NS
Nil					-

Table A4.18m: An association was indicated between pod size i.e. the total number of animals recorded per pod, divided into small (1-10) or large (11+) size classes and wind direction, by Likelihood ratio chi-square = 10.011, $df = 3$ and $P = 0.018$.

	Wind Direction				
	N	S	E	W	**Total**
Pod Size					
Small	10	8	4	2	24
Large	1	1	2	5	9
Total	11	9	6	7	33

Table A4.18n: No association was indicated between the presence or absence of calves and wind direction, by Likelihood ratio chi-square = 1.576, $df = 3$ and $P = 0.665$.

	Wind Direction				
	N	S	E	W	**Total**
Calves					
Absent	2	3	1	2	8
Present	5	2	3	3	13
Total	7	5	4	5	21

Table A4.18o: A one-factor Analysis of Variance of sea surface temperatures, $n = 23$, across seasons indicated a significant result but raw data were heteroscedastic (i.e. Cochran's test critical $C = 0.61$ at $P = 0.05 <$ observed $C = 0.71$). Variances were unable to be stabilised after $\log_{10}$ transformation (i.e. observed $C = 0.67$).

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Seasons	3	0.020	17.89	0.000
Error	19	0.001		

Table A4.18p: A *t*-test indicated no significant difference in the mean number of dolphins per sighting event, across cooler or warmer sea surface temperatures when divided at the mean recorded temperature (18.9°C). Pooled variances $t = 0.420$, $df = 21$ and $P = 0.679$. Power = 0.06.

Sea Surface Temperature	**N**	**Mean**	**SD**
Cooler	9	14.4	7.4
Warmer	14	16.5	13.3

Table A4.18q: No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and cooler or warmer sea surface temperature when divided at the mean recorded temperatures (18.9°C), by Fisher's Exact test $P = 0.669$.

	Sea Surface Temperature		
Sighting Size	Cooler	Warmer	**Total**
Small	3	7	10
Large	6	7	13
Total	9	14	23

Table A4.18r: No association was indicated between the number of pods per sighting event and cooler or warmer sea surface temperatures when divided at the mean recorded temperature (18.9°C), by Fisher's Exact test $P = 1.0$.

	Sea Surface Temperature		
Number of Pods	Cooler	Warmer	**Total**
1	5	8	13
2+	4	6	10
Total	9	14	23

Table A4.18s: A *t*-test indicated no significant difference in the presence or absence of calves, across cooler or warmer sea surface temperatures when divided at the mean recorded temperature (18.9°C). Pooled variances $t = 1.232$, $df = 21$ and $P = 0.231$. Power = 0.19.

Calves	**N**	**Mean**	**SD**
Absent	9	18.2	2.9
Present	14	19.4	1.9

TABLE A4.19 Analyses of Abundance Patterns in Non Transect Sightings at Transect Sites (NTTS) Data.

Table A4.19a: Distribution of dolphin numbers, $n = 361$, across quadrants of the Bay, adjusted for the different areas of each quadrant, chi-square = 53.9, $df = 3$ and $P < 0.001$.

	Quadrant			
	SW	NW	NE	SE
Observed	23	197	79	62
Expected	87	101	97	76

Table A4.19b: Distribution of dolphin numbers across seasons, $n = 361$, when survey effort is considered, chi-square = 117.0, $df = 3$ and $P < 0.001$.

	Season			
	AUT	SPR	SUM	WIN
Observed	275	12	31	43
Expected	173	36	76	76

Table A4.19c: Distribution of the total number of dolphins sighted across three substrata in waters ≤ 10 m deep, $n = 240$, when the area of each (see Table A3.4, Volume 1) is considered, chi-square = 181.0, $df = 2$ and $P < 0.001$.

	Substratum		
	Rock	Seagrass	Sand
Observed	78	116	46
Expected	26.4	76.8	136.8

TABLE A4.20 Analyses of Group Composition for all Non-Transect Sighting (NTS) Data

Table A4.20a: A *t*-test indicated a significant difference between the mean number of animals per sighting event with or without calves but raw data were heteroscedastic(i.e. *F*-test critical $F = 1.98$ at $P = 0.05 <$ observed $F = 2.06$). When data was $\log_{10}$ transformed variances were stabilised (i.e. observed $F = 1.39$). Pooled variances $t = 3.232$, $df = 52$ and $P = 0.002$.

Calves	**N**	**Log Mean**	**SD**
Absent	23	0.816	0.407
Present	31	1.48	0.345

Table A4.20b: A *t*-test indicated a significant difference in the mean pod size with or without calves but raw data were heteroscedastic (i.e. *F*-test critical $F = 1.70$ at $P = 0.05$ and observed $F = 2.66$). Data was not significant after $\log_{10}$ transformation. Pooled variances $t = 1.983$, $df = 87$ and $P = 0.051$. Power = 0.48.

Calves	**N**	**Log Mean**	**SD**
Absent	55	0.764	0.303
Present	34	0.905	0.363

Table A4.20c: An association is indicated between sighting size (i.e. the total number of animals per sighting, divided into small (1-10) and large (11+) size classes) and the presence or absence of calves, by Yates' corrected chi-square = 3.875, $df = 1$ and $P = 0.049$.

	Calves		
Sighting Size	Absent	Present	**Total**
Small	16	12	28
Large	7	19	26
Total	23	31	54

Table A4.20d: An association is indicated between the absence or presence of calves per pod, when pods were divided into small (1-10) or large (11+) size classes, by Yates' corrected chi-square = 5.100, *df* = 1 and *P* = 0.024.

	Calves		
	Absent	Present	**Total**
Pod Size			
Small	48	22	70
Large	7	12	19
Total	55	34	89

Table A4.20e: The total number of animals per sighting divided into small, medium and large size classes was associated with the number of pods per sighting, by McNemar Symmetry chi-square = 23.00, *df* = 4 and *P* = 0.000.

	Number of Pods			
	1	2	3+	Total
Sighting Size				
Small	12	0	0	12
Medium	10	6	2	18
Large	11	6	7	24
Total	33	12	9	54

Table A4.20f: No association is indicated between the number of pods per sighting, and the presence or absence of calves, by Likelihood ratio chi-square = 5.038, *df* = 2 and *P* = 0.081.

	Calves		
	Absent	Present	**Total**
Number of Pods			
1	16	17	33
2	6	6	12
3+	1	8	9
Total	23	31	54

Table A4.20g: No association is indicated between the number of animals per pod, divided into small (1-10) or large (11+) size classes and the number of calves per pod, by Fisher's Exact test, $P = 0.271$.

	Number of calves per pod		
	1	2+	**Total**
Pod Size			
Small	17	5	22
Large	7	5	12
Total	24	10	34

TABLE A4.21 Distribution of all Non-Transect Sightings (NTS) across Habitats defined by Depth

Table A4.21a: Distribution of sighting events (n=54) across depth when sampling effort (see Table A4.3g) is considered, df = 1, chi-square = 13.3 and $P < 0.001$.

	Depth (m)	
	0-10	>10
Observed	45	9
Expected	31.8	22.2

Table A4.21b: Distribution of sighting events across three depth categories for the whole Bay when the area of each is considered, df = 2, chi-square = 57.97 and $P < 0.001$.

	Depth Categories (m)		
	0-10	10-20	>20
Observed	45	9	0
Expected	12.9	28.2	12.8

Table A4.21c: A t-test indicated no significant difference in the mean number of animals per sighting event between shallow (≤11.5 m) or deep (>11.5 m) waters. Pooled variances t = 0.856, df = 52 and P = 0.396. Power = 0.11.

Depth	**N**	**Mean**	**SD**
Shallow	47	13.9	10.5
Deep	7	17.7	13.8

Table A4.21d: No association was indicated between the total number of animals per sighting, divided into small, medium and large size classes over shallow (≤11.5 m) or deep (>11.5 m) waters, by Pearson chi-square = 1.313, df = 2 and P = 0.519.

	Depth Category		
Sighting Size	Shallow	Deep	**Total**
Small	10	2	12
Medium	17	1	18
Large	20	4	24
Total	47	7	54

Table A4.21e: No association was indicated between the number of pods per sighting over shallow (≤11.5 m) or deep (>11.5 m) waters, by Pearson chi-square = 1.268, *df* = 2 and *P* = 0.530.

	Depth Category		
Number of Pods	Shallow	Deep	**Total**
1	30	3	33
2	10	2	12
3+	7	2	9
Total	47	7	54

Table A4.21f: A *t*-test indicated no significant difference in the mean size of pods recorded over shallow (≤11.5 m) or deep (>11.5 m) waters. Pooled variances *t* =0.203, *df* = 87 and *P* = 0.840. Power = 0.04.

Depth	**N**	**Mean**	**SD**
Shallow	76	8.8	7.4
Deep	13	8.4	4.6

Table A4.21g: No association was indicated between depths when divided into shallow (≤11.5 m) or deep (>11.5 m) waters and pod size (i.e. the total number of animals per sighting divided into small, medium and large size classes), by Likelihood ratio chi-square = 1.810, *df* = 2 and *P* = 0.404.

	Depth Category		
Pod Size	Shallow	Deep	**Total**
Small	38	4	42
Medium	23	6	29
Large	15	3	18
Total	76	13	89

Table A4.21h: No association was indicated between depths when divided into shallow (≤11.5 m) or deep (>11.5 m) waters and the presence or absence of calves, by Yates' corrected chi-square = 1.548, *df* = 1 and *P* = 0.213.

	Depth Category		
Calves	Shallow	Deep	**Total**
Absent	18	5	23
Present	29	2	31
Total	47	7	54

Table A4.21i: No association was indicated between depths when divided into shallow (≤11.5 m) or deep (>11.5 m) waters and the presence or absence of calves per pod by, Yates' corrected chi-square =2.321, *df* = 1 and *P* = 0.128.

	Depth Category		
Calves	Shallow	Deep	**Total**
Absent	44	11	55
Present	32	2	34
Total	76	13	89

Table A4.21j: A *t*-test indicated no significant difference in the mean sighting depth with or without calves. Pooled variances *t* = 1.150, *df* = 52 and *P* = 0.255. Power = 0.19.

Calves	**N**	**Mean**	**SD**
Absent	23	7.8	3.4
Present	31	6.8	3.1

TABLE A4.22 Distribution of all Non-Transect Sightings (NTS) across Habitats defined by Substrata

Table A4.22a: Distribution of sighting events across three substrata when the area of each is considered, $df = 2$, chi-square = 169.12 and $P < 0.001$.

	Substratum		
	Rocky	Seagrass	Sand
Observed	12	22	20
Expected	1.57	3.93	48.5

Table A4.22b: A one-factor Analysis of Variance of the total number of dolphins per sighting event, $n = 54$, across three substrata indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Substrata	2	72.07	0.601	0.552
Error	51	119.90		

Table A4.22c: No association is indicated between the total number of animals per sighting, divided into small, medium and large size classes across three substrata where sightings were recorded, by McNemar Symmetry chi square = 7.730, $df = 4$ and $P = 0.052$.

	Substratum			
	Sand	Seagrass	Rock	**Total**
Sighting Size				
Small	4	3	5	12
Medium	8	6	4	18
Large	8	13	3	24
Total	20	22	12	54

Table A4.22d: No association is indicated between the distribution of sightings across three substrata and the number of pods per sighting when combined into small (1-10) or large (11+) size classes, by Likelihood ratio chi-square = 3.628, $df = 2$ and $P = 0.163$.

	Number of Pods		
Substratum	1	2+	**Total**
Sand	9	11	20
Seagrass	15	7	22
Rock	9	3	12
Total	33	12	54

Table A4.22e: A one-factor Analyses of Variance of the total number of dolphins per pod, $n = 89$, across three substrata indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Substrata	2	121.39	2.524	0.086
Error	86	48.09		

Table A4.22f: No association is indicated between the distribution of sightings, across three substrata and the size of each pod divided into small (1-10) or large (11+) size classes, by Likelihood ratio chi-square = 4.150, $df = 2$ and $P = 0.126$.

	Pod Size		
Substratum	Small	Large	**Total**
Sand	36	5	41
Seagrass	22	10	32
Rock	12	4	16
Total	70	19	89

Table A4.22g: No association was indicated between sighting substratum and the presence or absence of calves per sighting event, by Pearson chi-square = 0.666, *df* = 2 and *P* = 0.717.

	Calves		
Substratum	Absent	Present	**Total**
Sand	9	11	20
Seagrass	8	14	22
Rock	6	6	12
Total	23	31	54

Table A4.22h: No association was indicated between sighting substratum and the presence or absence of calves per pod, by Likelihood ratio chi-square = 3.275, *df* = 2 and *P* = 0.194.

	Calves		
Substratum	Absent	Present	**Total**
Sand	29	12	41
Seagrass	16	16	32
Rock	10	6	16
Total	55	34	89

Table A4.22i: A one-factor Analysis of Variance of the depths at which sightings were recorded, $n = 54$, across three substrata indicated a significant result but raw data were heteroscedastic (i.e. Cochran's test critical $C = 0.56$ at $P = 0.05 <$ observed $C = 0.62$). Results remained significant when $\log_{10}$ transformed and variances were stabilised (i.e. observed $C = 0.40$).

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Substrata	2	0.274	12.045	0.000
Error	51	0.023		

Table A4.22j: Peritz multiple comparison procedure of sighting depths across three substrata, where alpha = 0.05, **S** indicates a significant result, and NS a non-significant result.

Substratum	**Sand**	**Seagrass**	**Rock**
Sand	-	**S**	**S**
Seagrass	-	-	NS
Rock	-	-	-

Table A4.22k: Distribution of sighting events, $n = 45$, across three substrata in waters ≤10 m when the area of each is considered, chi-square = 18.1, $df = 2$ and $P < 0.001$.

	Substratum		
	Rocky	Seagrass	Sand
Observed	11	22	12
Expected	5.1	14.3	25.6

Table A4.22l: A one-factor Analysis of Variance of the total number of dolphins per sighting event, $n = 45$, across three substrata in waters ≤10 m in depth indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Substrata	2	58.34	0.508	0.606
Error	42	114.92		

Table A4.22m: No association is indicated between the total number of animals per sighting, divided into small, medium and large size classes across three substrata in waters ≤10 m in depth, by McNemar Symmetry chi square = 7.361, $df = 4$ and $P = 0.061$.

	Substratum			
Sighting Size	Sand	Seagrass	Rock	**Total**
Small	2	3	5	10
Medium	6	6	3	15
Large	4	13	3	20
Total	12	22	11	45

Table A4.22n: No association is indicated between the distribution of sightings across three substrata in waters ≤10 m in depth and the number of pods when combined into two classes per sighting, by Pearson chi-square =2.659, *df* = 2 and *P* = 0.265.

	Number of Pods		
Substratum	1	2+	**Total**
Sand	6	6	12
Seagrass	15	7	22
Rock	9	2	11
Total	30	15	45

Table A4.22o: A one-factor Analysis of Variance of the total number of dolphins per pod, *n* = 70, across three substrata in waters ≤10 m in depth indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Substrata	2	130.50	2.36	0.102
Error	67	55.28		

Table A4.22p: An association is indicated between the distribution of sightings, across three substrata in waters ≤10 m in depth and the size of each pod divided into small (1-10) or large (11+) size classes, by Pearson chi-square = 6.505, *df* = 2 and *P* = 0.039.

	Pod Size		
Substratum	Small	Large	**Total**
Sand	23	1	24
Seagrass	22	10	32
Rock	10	4	14
Total	55	15	70

Table A4.22q: No association was indicated between sighting substratum in waters ≤10 m in depth and the presence or absence of calves per sighting event, by Likelihood ratio chi-square = 1.295, *df* = 2 and *P* = 0.523.

	Calves		
Substratum	Absent	Present	**Total**
Sand	4	8	12
Seagrass	8	14	22
Rock	6	5	11
Total	18	27	45

Table A4.22r: No association was indicated between sighting substratum in waters ≤10 m in depth and the presence or absence of calves per pod, by Pearson chi-square = 0.538, *df* = 2 and *P* = 1.240.

	Calves		
Substratum	Absent	Present	**Total**
Sand	15	9	24
Seagrass	16	15	32
Rock	9	5	14
Total	40	30	70

TABLE A4.23 Analyses of Environmental Variables for all Non-Transect Sighting (NTS) Data (i.e. Area of Bay, Season and Tidal State)

Table A4.23a: Distribution of sighting events across quadrants of the Bay, adjusted for the different areas of each quadrant, chi-square = 9.316, $df = 3$ and $P < 0.05$.

	Quadrant			
	SW	NW	NE	SE
Observed	15	23	12	4
Expected	12.96	15.12	14.58	11.34

Table A4.23b: A *t*-test indicated no significant difference in the mean number of dolphins, across the north or south of the Bay. Pooled variances $t = 0.002$, $df = 52$ and $P = 0.998$. Power = 0.03.

Half of Bay	**N**	**Mean**	**SD**
North	35	14.429	10.7
South	19	14.421	11.5

Table A4.23c: No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes across the north or south of the Bay, by Yates' corrected chi-square = 0.00, $df = 6$ and $P = 1.0$.

	Half of Bay		
	North	South	**Total**
Sighting Size			
Small	18	10	28
Large	17	9	26
Total	35	19	54

Table A4.23d: No association was indicated between the number of pods per sighting event across north or south of the Bay, by Yates' corrected chi-square P =1.0.

	Half of Bay		
Number of Pods	North	South	**Total**
1	21	12	33
2+	14	7	21
Total	35	19	54

Table A4.23e: A t-test indicated no significant difference in the mean number of dolphins per pod, across the north or south of the Bay. Pooled variances t = 0.935, df = 87 and P = 0.352. Power = 0.14.

Half of Bay	**N**	**Mean**	**SD**
North	61	8.3	6.8
South	28	9.8	7.6

Table A4.23f: No association was indicated between pod divided into small (1-10) or large (11+) size classes across the north or south of the Bay, by Yates' corrected chi-square =0.719, df = 1 and P = 0.396.

	Half of Bay		
Pod Size	North	South	**Total**
Small	50	20	70
Large	11	8	19
Total	61	28	89

Table A4.23g: No association was indicated between the presence or absence of calves across the north or south of the Bay per sighting event, by Yates' corrected chi-square P = 0.417.

	Half of Bay		
	North	South	**Total**
Calves			
Absent	13	10	23
Present	22	9	31
Total	35	19	54

Table A4.23h: Distribution of sighting events across seasons with the expected value based on the unequal distribution of sampling effort, chi-square = 6.65, df = 3 and $P >$ 0.05.

	Season			
	AUT	SPR	SUM	WIN
Observed	29	5	9	11
Expected	25.92	11.34	5.4	11.34

Table A4.23i: A one-factor Analysis of Variance of the total number of dolphins per sighting event, n = 54, across season indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	3	209.35	1,859	0.149
Error	50	112.62		

Table A4.23j: No association was indicated between the total number of animals per sighting, divided into small, medium and large size classes across seasons, by Likelihood ratio chi-square = 6.397, *df* = 6 and *P* = 0.38.

	Season				
Sighting Size	AUT	SPR	SUM	WIN	**Total**
Small	4	1	2	5	12
Medium	10	2	2	4	18
Large	15	2	5	2	24
Total	29	5	9	11	54

Table A4.23k: An association was indicated between the number of pods per sighting event and season, by Likelihood ratio chi-square = 9.116, *df* = 3 and *P* = 0.028.

	Season				
Number of Pods	AUT	SPR	SUM	WIN	**Total**
1	16	1	6	10	33
2+	13	4	3	1	21
Total	29	5	9	11	54

Table A4.23l: A one-factor Analysis of Variance of the total number of dolphins per pod, *n* = 89, across season indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	3	35.48	0.706	0.551
Error	85	50.26		

Table A4.23m: No association was indicated between pod size divided into small (1-10) or large (11+) size classes and season, by Likelihood ratio chi-square =0.475, *df* = 3 and *P* = 0.924.

	Season				
	AUT	SPR	SUM	WIN	**Total**
Pod Size					
Small	40	9	11	10	70
Large	11	2	4	2	19
Total	51	11	15	12	89

Table A4.23n: No association was indicated between the presence or absence of calves and season, by Likelihood ratio chi-square = 7.522, *df* = 3 and *P* = 0.057.

	Season				
	AUT	SPR	SUM	WIN	**Total**
Calves					
Absent	8	3	4	8	23
Present	21	2	5	3	31
Total	29	5	9	11	54

Table A4.23o: Distribution of sighting events across tidal state, chi-square = 6.795, *df* = 3 and *P* > 0.05.

	Tidal State			
	High	Ebb	Flood	Low
Observed	7	18	12	17
Expected	12.25	12.25	12.25	12.25

Table A4.23p: A one-factor Analysis of Variance of the total number of dolphins per sighting event, *n* = 54, across tidal state indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Tidal State	3	81.10	0.674	0.572
Error	50	120.32		

Table A4.23q: No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and tidal state, by Likelihood ratio chi-square = 4.978, *df* = 3 and *P* = 0.173.

	Tidal State				
Sighting Size	High	Ebb	Flood	Low	**Total**
Small	1	10	7	10	28
Large	6	8	5	7	26
Total	7	18	12	17	54

Table A4.23r: No association was indicated between the number of pods per sighting event and tidal state, by Pearson chi-square = 2.260, *df* = 3, and *P* = 0.52.

	Tidal State				
Number of Pods	High	Ebb	Flood	Low	**Total**
1	5	9	9	10	33
2+	2	9	3	7	21
Total	7	18	12	17	54

Table A4.23s: A one-factor Analysis of Variance of the total number of dolphins per pod, *n* = 89, across tidal state indicated a significant result but raw data were heteroscedastic (i.e. Cochran's test critical *C* = 0.41 at *P*= 0.05 < observed *C* = 0.45). The result was not significant after $\log_{10}$ transformation.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Tidal State	3	0.191	1.774	0.158
Error	85	0.108		

Table A4.23t: An association was indicated between pod size when divided into small (1-10) or large (11+) size classes and tidal state, by Pearson chi-square = 10.311, $df = 3$ and $P = 0.016$.

	Tidal State				
Pod Size	High	Ebb	Flood	Low	**Total**
Small	4	33	11	22	70
Large	5	3	5	6	19
Total	9	36	16	28	89

Table A4.23u: No association was indicated between the presence or absence of calves and tidal state, by Likelihood ratio chi-square = 4.528, $df = 3$ and $P = 0.21$.

	Tidal State				
Calves	High	Ebb	Flood	Low	Total
Absent	4	8	7	4	23
Present	3	10	5	13	31
Total	7	18	12	17	54

TABLE A4.24 Analyses of Environmental Variables for all Non-Transect Sighting (NTS) Data (i.e. Time of Day, Wind Direction and Sea Surface Temperature)

Table A4.24a: Distribution of sighting events across time of day categories with the expected value based on the uneven distribution of survey sampling (see Table A4.3d), chi-square = 0.541, $df = 2$ and $P > 0.05$.

	Time of Day		
	Morning	Midday	Afternoon
Observed	18	31	5
Expected	18.63	28.84	6.53

Table A4.24b: A one-factor Analysis of Variance of the total number of dolphins per sighting event, $n = 54$, across three time of day categories indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Time of Day	2	80.57	0.674	0.514
Error	51	119.57		

Table A4.24c: No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and time of day, by Likelihood ratio chi-square = 0.736, $df = 2$ and $P = 0.692$.

	Time of Day			
Sighting Size	Morning	Midday	Afternoon	**Total**
Small	11	14	3	28
Large	8	16	2	26
Total	19	30	5	54

Table A4.24d: No association was indicated between the number of pods per sighting event and time of day, by Pearson chi-square = 0.849, $df = 2$ and $P = 0.654$.

	Time of Day			
Number of Pods	Morning	Midday	Afternoon	**Total**
1	11	18	4	33
2+	8	12	1	21
Total	19	30	5	54

Table A4.24e: A one-factor Analysis of Variance of the total number of dolphins per pod, $n = 89$, across three time of day categories indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Time of Day	2	5.626	0.111	0.895
Error	86	50.78		

Table A4.24f: No association was indicated between pod size divided into small (1-10) or large (11+) size classes and time of day, by Likelihood ratio chi-square = 0.791, $df = 2$ and $P = 0.673$.

	Time of Day			
Pod Size	Morning	Midday	Afternoon	**Total**
Small	24	42	4	70
Large	5	12	2	19
Total	29	54	6	89

Table A4.24g: No association was indicated between the presence or absence of calves and time of day by, Likelihood ratio chi-square = 0.273, *df* = 2 and *P* = 0.873.

	Time of Day			
Calves	Morning	Midday	Afternoon	**Total**
Absent	9	12	2	23
Present	10	18	3	31
Total	19	30	5	54

Table A4.24h: A one-factor Analysis of Variance of the total number of dolphins per sighting event, *n* = 49, across four categories of wind direction indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Wind Direction	3	77.59	0.650	0.587
Error	45	119.34		

Table A4.24i: No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and wind direction, by Likelihood ratio chi-square = 1.042, *df* = 3 and *P* = 0.791.

	Wind Direction				
Sighting Size	N	S	E	W	**Total**
Small	9	7	4	6	26
Large	5	8	4	6	23
Total	14	15	8	12	49

Table A4.24j: No association was indicated between the number of pods per sighting event and wind direction, by Likelihood ratio chi-square =1.702, *df* = 3 and *P* = 0.637.

	Wind Direction				
	N	S	E	W	**Total**
Number of Pods					
1	10	8	5	9	32
2+	4	7	3	3	17
Total	14	15	8	12	49

Table A4.24k: A one-factor Analysis of Variance of the total number of dolphins per pod, $n = 74$, across four wind direction categories indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Wind Direction	3	112.74	2.107	0.107
Error	70	53.51		

Table A4.24l: No association was indicated between pod divided into small (1-10) or large (11+) size classes and wind direction, by Pearson chi-square = 6.501, *df* = 3 and *P* = 0.097.

	Wind Direction				
	N	S	E	W	**Total**
Pod Size					
Small	20	20	7	7	56
Large	3	4	4	7	18
Total	23	24	11	16	74

Table A4.24m: No association was indicated between the presence or absence of calves and wind direction, by Likelihood ratio chi-square = 4.350, *df* = 3 and *P* = 0.226.

	Wind Direction				
	N	S	E	W	**Total**
Calves					
Absent	4	9	2	6	21
Present	10	6	6	6	28
Total	14	15	8	12	49

Table A4.24m: No association was indicated between season and wind direction, by McNemar Symmetry chi-square = 11.286, *df* = 9 and *P* = 0.80.

	Wind Direction				
	N	S	E	W	**Total**
Season					
AUT	11	4	6	5	26
SPR	0	4	0	0	4
SUM	2	2	2	2	8
WIN	1	5	0	5	11
Total	14	15	8	12	49

Table A4.24n: A one-factor Analysis of Variance of sea surface temperatures, $n = 54$, across seasons indicated a significant result and data were homoscedastic (i.e. Cochran's test critical $C = 0.51$ at $P = 0.05$ > observed $C = 0.48$).

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	3	96.55	52.626	0.000
Error	50	1.84		

Table A4.24o: Peritz multiple comparison procedure of sea surface temperatures across seasons, where alpha = 0.05, **S** indicates a significant result, and NS a non-significant result.

Season	**WIN**	**AUT**	**SPR**	**SUM**
WIN	-	**S**	NS	**S**
AUT	-	-	**S**	**S**
SPR	-	-	-	**S**
SUM	-	-	-	-

Table A4.24p: A *t*-test indicated no significant difference in the mean number of dolphins per sighting event, across cooler or warmer sea surface temperatures when divided at the mean recorded temperature (18.4°C). Pooled variances $t = 0.321$, $df = 52$ and $P = 0.749$. Power = 0.05.

Sea Surface Temperature	**N**	**Mean**	**SD**
Cooler	23	13.9	10.3
Warmer	31	14.8	11.4

Table A4.24q: No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and cooler or warmer sea surface temperature when divided at the mean recorded temperatures (18.4°C), by Yates' corrected chi-square = 0.55, $df = 1$ and $P = 0.815$.

	Sea Surface Temperature		
Sighting Size	Cooler	Warmer	**Total**
Small	11	17	28
Large	12	14	26
Total	23	31	54

Table A4.24r: No association was indicated between the number of pods per sighting event and cooler or warmer sea surface temperatures when divided at the mean recorded temperature (18.4°C), by Yates' corrected chi-square = 0.00, *df* = 1 and *P* = 1.0.

	Sea Surface Temperature		
Number of Pods	Cooler	Warmer	**Total**
1	14	19	33
2+	9	12	21
Total	23	31	54

Table A4.24s: A *t*-test indicated no significant difference in the presence or absence of calves, across cooler or warmer sea surface temperatures when divided at the mean recorded temperature (18.4°C). Pooled variances *t* = 1.408, *df* = 52 and *P* = 0.165. Power = 0.26.

Calves	**N**	**Mean**	**SD**
Absent	23	17.9	3.0
Present	31	18.9	2.4

TABLE A4.25 Analyses of Spatial Pattern Variables for all Non-Transect Sighting (NTS) Data

Table A4.25a: A *t*-test indicated no significant difference in the mean number of dolphins per sighting event, across clumped and dispersed spatial patterns. Pooled variances $t = 1.871$, $df = 52$ and $P = 0.067$. Power = 0.50.

Spatial Pattern	**N**	**Mean**	**SD**
Clumped	39	16.1	11.5
Dispersed	15	10.1	7.7

Table A4.25b: An association was indicated between the total number of animals per sighting, divided into small, medium and large size classes and the overall spatial pattern of the group, by McNemar Symmetry chi-square = 21.165, $df = 4$ and $P = 0.000$.

	Spatial Pattern			
	Clumped	Spread	Mixed	**Total**
Sighting Size				
Small	7	4	1	12
Medium	13	3	2	18
Large	19	3	2	24
Total	39	10	5	54

Table A4.25c: No association was indicated between the number of pods per sighting event and the overall spatial pattern of the group by Pearson chi-square = 4.812, $df = 2$ and $P = 0.09$.

	Spatial Pattern			
	Clumped	Spread	Mixed	**Total**
Number of Pods				
1	22	9	2	33
2+	17	1	3	21
Total	39	10	5	54

Table A4.25d: A *t*-test indicated no significant difference in the mean number of dolphins per pod, across clumped and dispersed spatial patterns. Pooled variances $t = 0.897$, $df = 87$ and $P = 0.372$. Power = 0.15.

Spatial Pattern	**N**	**Mean**	**SD**
Clumped	69	8.4	7.2
Dispersed	20	10.0	6.5

Table A4.25e: No association was indicated between pod size (i.e. the total number of animals recorded per pod) divided into small (1-10) or large (11+) size classes and the spatial pattern of each pod, by Yates' corrected chi-square = 1.931, $df = 1$ and $P = 0.167$.

	Spatial Pattern		
Pod Size	Clumped	Dispersed	**Total**
Small	57	13	70
Large	12	7	19
Total	69	20	89

Table A4.25f: No association was indicated between the presence or absence of calves and the overall spatial pattern of the whole group sighted, Yates' corrected chi-square = 0.005, $df = 1$ and $P = 0.946$.

	Spatial Pattern		
Calves	Clumped	Dispersed	**Total**
Absent	16	7	23
Present	23	8	31
Total	39	15	54

Table A4.25g: No association was indicated between the presence or absence of calves per pod and the spatial pattern of each pod, Yates' corrected chi-square = 0.355, *df* = 1 and *P* = 0.551.

	Spatial Pattern		
Calves	Clumped	Dispersed	**Total**
Absent	41	14	55
Present	28	6	34
Total	69	20	89

Table A4.25h: A *t*-test indicated no significant difference in the mean sighting depth for clumped and dispersed spatial patterns. Pooled variances $t = 0.348$, $df = 52$ and $P = 0.729$. Power = 0.06.

Spatial Pattern	**N**	**Mean**	**SD**
Clumped	39	7.3	3.5
Dispersed	15	6.9	2.7

Table A4.25i: No association was indicated between depths when divided into shallow (≤11.5 m) or deep (>11.5 m) waters and the overall spatial pattern of the whole group sighted, by Yates' corrected chi-square = 0.00, *df* = 1 and *P* = 1.0.

	Spatial Pattern		
Depth Category	Clumped	Dispersed	**Total**
Shallow	34	13	47
Deep	5	2	7
Total	39	15	54

Table A4.25j: No association was indicated between sighting substratum and the overall spatial pattern of the whole group sighted, by Pearson chi-square = 3.565, *df* = 2 and *P* =0.168.

	Spatial Pattern		
Substratum	Clumped	Dispersed	**Total**
Sand	17	3	20
Seagrass	13	9	22
Rock	9	3	12
Total	39	15	54

Table A4.25k: No association was indicated between the quadrants of the Bay in which sightings were made when combined into two categories, i.e. north or south and the overall spatial pattern of the whole group sighted, by Pearson chi-square = 2.519, *df* = 3 and *P* = 0.472.

	Spatial Pattern		
Half of Bay	Clumped	Dispersed	**Total**
North	25	10	35
South	14	5	19
Total	39	15	54

Table A4.25l: No association was indicated between season and the overall spatial pattern of the whole group sighted, by Likelihood ratio chi-square =7.196, *df* = 3 and *P* = 0.066.

	Spatial Pattern		
Season	Clumped	Dispersed	**Total**
AUT	25	4	29
SPR	3	2	5
SUM	6	3	9
WIN	5	6	11
Total	39	15	54

Table A4.25m: No association was indicated between sea surface temperature when divided into cooler (≤ 18.4°C) or warmer temperatures (> 18.4°C) and the overall spatial pattern of the whole group sighted, by Yates' corrected chi-square = 1.683, *df* = 1 and *P* = 0.195.

	Spatial Pattern		
Temperature	Clumped	Dispersed	**Total**
Cooler	14	9	23
Warmer	25	6	31
Total	39	15	54

Table A4.25n: No association was indicated between tidal state, and the overall spatial pattern of the whole group sighted, by Pearson chi-square = 2.684, *df* = 3 and *P* = 0.443.

	Spatial Pattern		
Tidal State	Clumped	Dispersed	**Total**
High	5	2	7
Ebb	15	3	18
Flood	9	3	12
Low	10	7	17
Total	39	15	54

Table A4.25o: An association was indicated between the time of day and the overall spatial pattern of the whole group sighted, by Likelihood ratio chi-square = 6.103, *df* = 2 and *P* = 0.047.

	Spatial Pattern		
Time of Day	Clumped	Dispersed	**Total**
Morning	17	2	19
Midday	20	10	30
Afternoon	2	3	5
Total	39	15	54

Table A4.25p: No association was indicated between wind direction and the overall spatial pattern of the whole group sighted, by Likelihood ratio chi-square = 0.208, $df = 3$ and $P = 0.976$.

	Spatial Pattern		
Wind Direction	Clumped	Dispersed	**Total**
E	6	2	8
N	10	4	14
S	11	4	15
W	8	4	12
Total	35	14	49

Table A4.25q: No association was indicated between depths when divided into shallow (≤11.5 m) or deep (>11.5 m) waters and the spatial pattern of each pod, by Yates' corrected chi-square = 0.173, $df = 1$ and $P = 0.677$.

	Spatial Pattern		
Depth Category	Clumped	Dispersed	**Total**
Shallow	60	16	76
Deep	9	4	13
Total	69	20	89

Table A4.25r: No association was indicated between sighting substratum and the spatial pattern of each pod, by Likelihood ratio chi-square = 4.078, $df = 2$ and $P = 0.13$.

	Spatial Pattern		
Substratum	Clumped	Dispersed	**Total**
Sand	35	6	41
Seagrass	21	11	32
Rock	13	3	16
Total	69	20	89

Table A4.25s: No association was indicated between the quadrants of the Bay in which sightings were made when combined into two categories i.e. north or south, and the spatial pattern of each pod, by Yates' corrected chi-square = 0.436, *df* = 1 and *P* = 0.509.

	Spatial Pattern		
Half of Bay	Clumped	Dispersed	**Total**
North	49	12	61
South	20	8	28
Total	69	29	89

Table A4.25t: No association was indicated between season and the spatial pattern of each pod, by Likelihood ratio chi-square = 5.991, *df* = 3 and *P* = 0.112.

	Spatial Pattern		
Season	Clumped	Dispersed	**Total**
AUT	43	8	51
SPR	8	3	11
SUM	12	3	15
WIN	6	6	12
Total	69	20	89

Table A4.25u: No association was indicated between sea surface temperature when divided into cooler (≤ 18.4 C) or warmer temperatures (> 18.4 C), and the spatial pattern of each pod, by Yates' corrected chi-square = 0.062, *df* = 1 and *P* = 0.804.

	Spatial Pattern		
Temperature	Clumped	Spread	**Total**
Cooler	44	14	58
Warmer	25	6	31
Total	69	20	89

Table A4.25v: No association was indicated between tidal state, and the spatial pattern of each pod, by Pearson chi-square =1.667, $df = 3$ and $P = 0.630$.

	Spatial Pattern		
Tidal State	Clumped	Dispersed	**Total**
High	8	1	9
Ebb	29	7	36
Flood	11	5	16
Low	21	7	28
Total	69	20	89

Table A4.25w: No association was indicated between the time of day and the spatial pattern of each pod, by Likelihood ratio chi-square = 5.427, $df = 2$ and $P = 0.066$.

	Spatial Pattern		
Time of Day	Clumped	Dispersed	**Total**
Morning	26	3	29
Midday	40	14	54
Afternoon	3	3	6
Total	69	20	89

Table A4.25x: No association was indicated between wind direction and the spatial pattern of each pod sighted, by Likelihood ratio chi-square =2.194, $df = 3$ and $P = 0.533$.

	Spatial Pattern		
Wind Direction	Clumped	Dispersed	**Total**
E	9	2	11
N	19	4	23
S	16	8	24
W	11	5	16
Total	55	19	74

TABLE A4.26 Analyses of Behavioural Variables for all Non-Transect Sighting (NTS) Data

Table A4.26a: No association was indicated between tidal state and direction of travel of dolphins at the time of the initial sighting, by Likelihood ratio chi-square = 12.188, $df = 12$ and $P = 0.431$.

	Direction of Travel					
Tidal State	Nil	N	S	E	W	**Total**
High	1	3	0	0	3	7
Ebb	2	9	1	4	2	18
Flood	3	3	3	2	1	12
Low	2	7	1	4	3	17
Total	8	22	5	10	9	54

Table A4.26b: An association was indicated between wind direction (excluding nil wind conditions n=5) and direction of travel of dolphins at the time of the initial sighting, by Likelihood ratio chi-square = 21.949, $df = 12$ and $P = 0.038$.

	Direction of Travel					
Wind Direction	Nil	N	S	E	W	**Total**
N	2	4	4	4	0	14
E	2	2	0	1	3	8
S	4	7	0	2	2	15
W	0	5	1	3	3	12
Total	8	18	5	10	8	49

Table A4.26c: An association was indicated between two categories of time of day (i.e. morning < 1000 and midday 1000-1400) and the direction of travel of dolphins at the time of the initial sighting, by Likelihood ratio chi-square = 12.690, *df* = 4 and *P* = 0.013.

	Direction of Travel					
Time of Day	Nil	N	S	E	W	**Total**
Morning	4	8	0	1	6	19
Midday	4	14	8	2	2	30
Total	8	22	8	3	8	49

Table A4.26d: No association was indicated between the general behaviour of all animals sighted and the overall spatial pattern of the whole group, by Pearson chi-square = 1.515, *df* = 2 and *P* = 0.469.

	Spatial Pattern		
Behaviour	Clumped	Dispersed	**Total**
Travel	29	10	39
Milling	4	3	7
Social/Feed	6	1	7
Total	39	14	53

Table A4.26e: No association was indicated between the behaviour of pods and the spatial pattern of each pod, by Likelihood ratio chi-square =3.328, *df* = 2 and *P* = 0.189.

	Spatial Pattern		
Behaviour	Clumped	Dispersed	**Total**
Travel	38	7	45
Milling	5	4	9
Social/Feed	27	7	34
Total	70	18	88

Table A4.26f: A one-factor Analysis of Variance of the total number of dolphins per sighting event, $n = 53$, across three categories of behavioural activity indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Behaviour	2	137.65	1.181	0.315
Error	50	116.53		

Table A4.26g: A one-factor Analysis of Variance of the total number of dolphins per pod, $n = 88$, across three categories of behavioural activity indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Behaviour	2	77.37	1.574	0.213
Error	85	49.15		

Table A4.26h: No association was indicated between pod size (i.e. the total number of animals recorded per pod) divided into small (1-10) or large (11+) size classes and the behaviour of each pod, by Likelihood ratio chi-square = 4.134, $df = 2$ and $P = 0.127$.

	Behaviour			
Pod Size	Travel	Milling	Social/Feed	**Total**
Small	39	7	23	69
Large	6	2	11	19
Total	45	9	34	88

Table A4.26i: No association was indicated between the presence or absence of calves per pod and the behaviour of pods, by Likelihood ratio chi-square = 0.142, $df = 2$ and $P = 0.931$.

	Behaviour			
Calves	Travel	Milling	Social/Feed	**Total**
Absent	28	5	21	54
Present	17	4	13	34
Total	45	9	34	88

Table A4.26j: A one-factor Analysis of Variance of the sighting depth of dolphins per sighting event, $n = 53$, across three categories of behavioural activity indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Behaviour	2	18.79	1.790	0.178
Error	50	10.50		

Table A4.26k: No association was indicated between depths when divided into shallow (≤11.5 m) or deep (>11.5 m) waters and the behaviour of each pod, by Likelihood ratio chi-square =5.204, $df = 2$ and $P = 0.074$.

	Behaviour			
Depth Category	Travel	Milling	Social/ Feed	**Total**
Shallow	40	9	26	75
Deep	5	0	8	13
Total	45	9	34	88

Table A4.26l: An association was indicated between sighting substratum and the behaviour of each pod, by McNemar Symmetry chi-square = 24.506, $df = 4$ and $P = 0.00$.

	Behaviour			
Substratum	Travel	Milling	Social/Feed	**Total**
Sand	21	0	20	41
Seagrass	15	7	10	32
Rock	9	2	4	15
Total	45	9	34	88

Table A4.26m: An association was indicated between sightings made in the north or south of the Bay and the behaviour of each pod, by Pearson chi-square = 7.423, *df* = 2 and *P* = 0.024.

	Behaviour			
Half of Bay	Travel	Milling	Social/Feed	**Total**
North	35	8	18	61
South	10	1	16	27
Total	45	9	34	88

Table A4.26n: No association was indicated between season and the behaviour of each pod, by Pearson chi-square = 4.638, *df* = 6 and *P* = 0.412.

	Behaviour			
Season	Travel	Milling	Social/Feed	**Total**
AUT	22	7	22	51
SPR	6	1	4	11
SUM	10	0	5	15
WIN	7	1	3	11
Total	45	9	34	88

Table A4.26o: No association was indicated between tidal state, and the behaviour of each pod, by Likelihood ratio chi-square = 3.967, *df* = 6 and *P* = 0.681.

	Behaviour			
Tidal State	Travel	Milling	Social/Feed	**Total**
High	3	1	5	9
Ebb	19	3	14	36
Flood	6	3	6	15
Low	17	2	9	28
Total	45	9	34	88

Table A4.26p: No association was indicated between two time of day categories (morning = <1000 and midday = 1000-1400) and the behaviour of each pod, by Pearson chi-square = 2.255, $df = 2$ and $P = 0.324$.

	Behaviour			
Time of Day	Travel	Milling	Social/Feed	**Total**
Morning	18	2	9	29
Midday	24	7	22	53
Total	42	9	31	82

Table A4.26q: No association was indicated between sea surface temperature when divided into cooler (≤18.4°C) or warmer temperatures (>18.4°C) and the behaviour of pods, by Likelihood ratio chi-square = 0.615, $df = 2$ and $P = 0.735$.

	Behaviour			
Temperature	Travel	Milling	Social/Feed	**Total**
Cooler	31	5	22	58
Warmer	14	4	12	30
Total	45	9	34	88

Table A4.26r: No association was indicated between wind direction and the behaviour of pods, by Pearson chi-square = 10.163, $df = 6$ and $P = 0.101$.

	Behaviour			
Wind Direction	Travel	Milling	Social/Feed	**Total**
N	17	2	4	23
S	9	4	11	24
E	3	2	6	11
W	10	1	5	16
Total	39	9	26	74

TABLE A4.27 Abundance Patterns in Non-Transect Sighting (NTS) Data

Table A4.27a: Distribution of dolphin numbers, $n = 779$ across quadrants of the Bay, adjusted for the different areas of each quadrant, chi-square = 95.12 $df = 3$ and $P < 0.001$.

	Quadrant			
	SW	NW	NE	SE
Observed	182	330	175	92
Expected	187	218	210	164

Table A4.27b: Distribution of calves, $n = 45$ across quadrants of the Bay, adjusted for the different areas of each quadrant, chi-square = 16.16, $df = 3$ and $P < 0.01$.

	Quadrant			
	SW	NW	NE	SE
Observed	14	22	6	3
Expected	11	12	12	9

Table A4.27c: Distribution of dolphin numbers across seasons $n = 779$ when survey effort is considered, chi-square = 175.3, $df = 3$ and $P < 0.001$.

	Season			
	AUT	SPR	SUM	WIN
Observed	470	75	149	85
Expected	373.92	163.59	77.9	163.59

Table A4.27d: Distribution of calves across seasons, $n = 45$, when survey effort is considered, chi-square = 14.33, $df = 3$ and $P < 0.01$.

	Season			
	AUT	SPR	SUM	WIN
Observed	27	4	10	4
Expected	21.6	9.45	4.5	9.45

Table A4.27e: Distribution of the total number of dolphins recorded at non-transect sightings, $n = 779$, across years when adjusted for different annual survey effort, chi-square = 1.67, $df = 1$ and $P > 0.05$.

	Year	
	1991	1992
Observed	398	381
Expected	416	363

Table A4.27f: Distribution of the total number of calves sighted, $n = 45$, across years when adjusted for different annual effort, chi-square = 0.00, $df = 1$ and $P > 0.05$.

	Year	
	1991	1992
Observed	24	21
Expected	24	21

Table A4.27g: Distribution of the total number of dolphins sighted across three substrata in waters ≤ 10 m deep, $n = 639$, when the area of each (see Table A3.4, Volume 1) is considered, chi-square = 268.0, $df = 2$ and $P < 0.001$.

	Substratum		
	Rock	Seagrass	Sand
Observed	132	347	160
Expected	70.29	204.48	364.23

Table A4.27h: Distribution of the total number of calves sighted across three substrata in waters ≤ 10 m deep, $n = 37$, when the area of each (see Table A3.4, Volume 1) is considered, chi-square = 14.76, $df = 2$ and $P < 0.001$.

	Substratum		
	Rock	Seagrass	Sand
Observed	5	22	10
Expected	4.07	11.84	21.09

TABLE A4.28 Density Estimates for all Non-Transect Sighting (NTS) Data

Table A4.28a: Estimated dolphin density (no. per sq. km) across quadrants of the Bay based on the mean number of dolphins sighted in waters ≤ 10 m (n=482) per survey in each quadrant, by the different areas of each quadrant at depths ≤ 10.

	Quadrant			
	SW	NW	NE	SE
Mean number/survey	2.3	6.4	3.4	0.94
Area quadrant ≤10 m (sq. km)	4.8	10.7	10.1	2.5
Density Estimate	0.48	0.59	0.34	0.38

Table A4.28b: Estimated dolphin density (no. per sq. km) across seasons based on the mean number of dolphins sighted per survey (n=58) per season for the whole of the Bay (117.2 sq km).

	Season			
	AUT	SPR	SUM	WIN
Mean number/survey	16.8	6.3	24.8	7.1
Density Estimate	0.14	0.05	0.21	0.06

Table A4.28c: Estimated dolphin density (no. per sq. km) across three substrata in waters ≤10 m based on the mean number of dolphins per sighting event (n=45) over each substratum by the different area of each.

	Substratum		
	Sand	Seagrass	Rock
Mean number/sighting event	13.3	15.8	12.0
Substratum area (sq. km)	15.98	8.9	3.22
Density Estimate	0.8	1.8	3.7

Table A4.28d: Estimated calf density (no. per sq. km) across three substrata in waters ≤10 m based on the mean number of calves per sighting event with calves (n=27) over each substratum by the different area of each.

	Substratum		
	Sand	Seagrass	Rock
Mean number/sighting event	0.37	0.82	0.19
Substratum area (sq. km)	15.98	8.9	3.22
Density Estimate	0.02	0.09	0.06

APPENDIX 5: TABLES A5.1 - A5.9

TABLE A5.1 March 1992 Regional Survey - Group Composition

Table A5.1a: A one-factor Analysis of Variance of the total number of dolphins per sighting event, $n = 17$, across three Survey legs (i.e. Bay, Northern and Southern routes) indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Survey Legs	2	27.0	1.588	0.239
Error	14	17.0		

Table A5.1b: A one-factor Analysis of Variance of the total number of dolphins per pod, $n = 20$, across three Survey legs (i.e. Bay, Northern and Southern routes) indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Survey Legs	2	37.25	3.544	0.052
Error	17	10.51		

TABLE A5.2 Sampling Effort in the Bay only for all three Regional Surveys

Table A5.2a: Distribution of sighting events in the Bay, $n = 22$, across the three Regional Surveys when sampling effort (i.e. number of survey days) is considered, chi-square = 3.377, $df = 2$ and $P > 0.05$.

	Surveys		
	March, 1992	November, 1992	April, 1993
Observed	7	4	11
Expected	7.3	7.3	7.3

Table A5.2b: Distribution of sighting events in the Bay made from the vessel designated the Bay route, $n = 20$, across the three Regional Surveys when sampling effort (i.e. number of survey days) is considered, chi-square =1.9, $df = 2$ and $P > 0.05$.

	Surveys		
	March, 1992	November, 1992	April, 1993
Observed	7	4	9
Expected	6.66	6.66	6.66

Table A5.2c: Distribution of sampling effort across two time of day categories, $n = 51.03$ hours, chi-square =0.173, $df = 1$ and $P > 0.05$.

	Time of Day	
	Morning	Midday
Observed	27.00	24.03
Expected	25.52	25.52

Table A5.2d: Distribution of sampling effort across tidal state, $n = 27$, chi-square =3.663, $df = 3$ and $P > 0.05$.

	Tidal State			
	High	Ebb	Flood	Low
Observed	6	9	9	3
Expected	6.75	6.75	6.75	6.75

TABLE A5.3 Group Composition of sightings within the Bay only, for all three Regional Surveys

Table A5.3a: A one-factor Analysis of Variance of the total number of dolphins per sighting event, $n = 22$, across the three Surveys (i.e. March and November, 1992 and April, 1993) indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Surveys	2	154.44	2.948	0.077
Error	19	52.39		

Table A5.3b: A one-factor Analysis of Variance of the total number of dolphins per pod, $n = 36$, across the three Surveys (i.e. March and November, 1992 and April, 1993) indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Surveys	2	21.86	1.613	0.215
Error	33	13.55		

Table A5.3c: The total number of calves sighted in the Bay, per day for each Regional Survey.

	Total Number of Calves	**Number of Sighting Events with calves**
MAR		
20.3.92	0	0
21.3.92	2	2
22.3.92	3	2
NOV		
27.11.92	1	1
28.11.92	3	1
29.11.92	4	1
APR		
2.4.93	3	2
3.4.93	2	2
4.4.93	1	1

Table A5.3d: A one-factor Analysis of Variance of the total number of calves per sighting event, $n = 22$, across the three Surveys (i.e. March and November, 1992 and April, 1993) indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Surveys	2	3.22	3.367	0.056
Error	19	0.96		

Table A5.3e: A *t*-test indicated a significant difference in the mean number of animals per sighting event, $n = 22$, with or without calves (i.e. *F*-test critical $F = 3.10$ at $P=0.05$ and observed $F = 1.43$). Pooled variances $t = 2.203$, $df = 20$ and $P = 0.039$.

Calves	**N**	**Mean**	**SD**
Absent	10	7.0	6.5
Present	12	13.8	7.8

Table A5.3f: No association is indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and the presence or absence of calves, by Fisher's Exact test $P = 0.198$.

	Calves		
Sighting Size	Absent	Present	**Total**
Small	7	4	11
Large	3	8	11
Total	10	12	22

Table A5.3g: The total number of animals per sighting divided into small (1-10) or large (11+) size classes was associated with the number of pods (divided into one or more pods) per sighting, by Fisher's Exact test $P = 0.000$.

	Number of Pods		
Sighting Size	1	2+	**Total**
Small	11	0	11
Large	0	11	11
Total	11	11	22

Table A5.3h: No association is indicated between the number of pods per sighting, and the presence or absence of calves, by Fisher's Exact test $P = 0.198$.

	Calves		
Number of Pods	Absent	Present	**Total**
1	7	4	11
2+	3	8	11
Total	10	12	22

Table A5.3i: A *t*-test indicated no significant difference in the mean pod size, with or without calves. Pooled variances $t = 0.657$, $df = 34$ and $P = 0.516$. Power = 0.11.

Calves	**N**	**Mean**	**SD**
Absent	21	6.9	4.5
Present	15	6.0	2.5

Table A5.3j: An association is indicated between the number of animals per pod, divided into small (1-10) or large (11+) size classes and the presence or absence of calves per pod, by Fisher's Exact test and $P = 0.001$.

	Calves		
Pod Size	Absent	Present	**Total**
Small	18	15	33
Large	3	0	3
Total	21	15	36

Table A5.3k: No association is indicated between the number of animals per pod, divided into small (1-10) or large (11+) size classes and the number of calves per pod, by Likelihood ratio chi-square =3.427, $df = 2$ and $P = 0.18$.

	Number of calves per pod			
	Nil	1	2+	**Total**
Pod Size				
Small	18	11	4	33
Large	3	0	0	3
Total	21	11	4	36

TABLE A5.4 Distribution of sightings across Habitats within the Bay only, for all three Regional Surveys

Table A5.4a: A one-factor Analysis of Variance of the depths at which sightings were made, $n = 22$, across the three Surveys (i.e. March and November, 1992 and April, 1993) indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Surveys	2	37.15	0.99	0.39
Error	19	37.53		

Table A5.4b: Distribution of sighting events across three depth categories for the whole Bay when the area of each (see Table A3.2, Volume 1) is considered (i.e. used to calculate expected values), $n = 22$, chi-square = 19.73, $df = 2$, and $P < 0.001$.

	Area (m)		
	0-≤10	10-≤20	>20
Observed	15	5	2
Expected	5.3	11.5	5.2

Table A5.4c: An association is indicated between sighting substratum and the three different Surveys (i.e. March and November, 1992 and April, 1993), by McNemar Symmetry chi-square =8.333, $df = 4$ and $P = 0.04$.

	Substratum			
Surveys	Sand	Seagrass	Rock	**Total**
March	6	1	0	7
November	0	3	1	4
April	7	2	2	11
Total	13	6	3	22

Table A5.4d: Distribution of sighting events, $n = 22$, across three substrata when the area of each (see Table A2.1, Volume 1) is considered (i.e. used to calculate expected values), chi-square = 23.49, $df = 2$ and $P < 0.001$.

	Substratum		
	Rock	Seagrass	Sand
Observed	3	6	13
Expected	0.66	1.54	19.8

Table A5.4e: A one-factor Analysis of Variance of the depths at which sightings were made, $n = 22$, across three substrata indicated a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Substrata	2	72.41	2.141	0.145
Error	19	33.82		

Table A5.4f: Distribution of sighting events, $n = 15$, across three substrata when the area of each in waters ≤10 m in depth is considered (see Table A3.4, Volume 1), chi-square = 1.394, $df = 2$ and $P > 0.05$.

	Substratum		
	Rocky	Seagrass	Sand
Observed	3	5	7
Expected	1.65	4.8	8.55

TABLE A5.5 Environmental Variables for sightings within the Bay only, for all three Regional Surveys

Table A5.5a: Distribution of sighting events, $n = 20$, across quadrants of the Bay, adjusted for the different areas of each quadrant (see Table A3.1a, Volume 1) (i.e. used to calculate expected values), chi-square = 8.091, $df = 3$ and $P < 0.05$.

	Quadrant			
	SW	NW	NE	SE
Observed	1	10	7	2
Expected	4.8	5.6	5.4	4.2

Table A5.5b: No association was indicated between the presence or absence of calves across the north or south of the Bay per sighting event, by Fisher's Exact test $P = 0.571$.

	Half of Bay		
	North	South	**Total**
Calves			
Absent	8	2	10
Present	11	1	12
Total	19	3	22

Table A5.5c: Distribution of sighting events across tidal state, $n = 20$, chi-square = 1.6, $df = 3$ and $P > 0.05$.

	Tidal State			
	High	Ebb	Flood	Low
Observed	6	3	7	4
Expected	5	5	5	5

Table A5.5d: No association was indicated between the total number of animals recorded per pod, divided into small (1-10) or large (11+) size classes and tidal state, by Pearson chi-square =3.736, $df = 3$ and $P = 0.291$.

	Tidal State				
Pod Size	High	Ebb	Flood	Low	**Total**
Small	10	4	12	7	33
Large	1	0	0	2	3
Total	11	4	12	9	36

Table A5.5e: A *t*-test indicated no significant difference in the mean sea surface temperature in the Bay across the two seasons surveys were conducted. Pooled variances $t = 1.299$, $df = 20$ and $P = 0.209$.

Season	**N**	**Mean**	**SD**
Autumn	18	9.578	6.523
Spring	4	5.25	0.957

TABLE A5.6 Contingency Test of Spatial Pattern and Sighting Size for all sightings within the Bay, from all three Regional Surveys where spatial pattern was recorded. No association was indicated between the total number of animals per sighting, divided into small (1-10) or large (11+) size classes and the overall spatial pattern of the group, by Fisher's Exact test $P = 0.586$.

	Spatial Pattern		
	Clumped	Dispersed	**Total**
Sighting Size			
Small	9	1	10
Large	8	3	11
Total	17	4	21

TABLE A5.7 Abundance Patterns based on all sightings within the Bay, for all three Regional Surveys

Table A5.7a: Distribution of the total number of dolphins sighted, $n = 236$, across quadrants of the Bay, adjusted for the different areas of each quadrant (i.e. used to calculate expected values), chi-square = 127.22, $df = 3$ and $P < 0.001$.

	Quadrant			
	SW	NW	NE	SE
Observed	4	129	86	17
Expected	57	66	64	49

Table A5.7b: Distribution of the total number of calves sighted, $n = 19$, across quadrants of the Bay, adjusted for the different areas of each quadrant (i.e. used to calculate expected values), chi-square = 14.0, $df = 3$ and $P < 0.01$.

	Quadrant			
	SW	NW	NE	SE
Observed	1	10	8	0
Expected	5	5	5	4

Table A5.7c: Distribution of the total number of dolphins sighted across three substrata in waters ≤ 10 m deep, $n = 189$, when the area of each (see Table A3.4, Volume 1) is considered, chi-square = 44.01, $df = 2$ and $P < 0.001$.

	Substratum		
	Rock	Seagrass	Sand
Observed	13	103	73
Expected	20.79	60.48	107.73

Table A5.7d: Distribution of the total number of calves sighted across three substrata in waters ≤ 10 m deep, $n = 15$, when the area of each (see Table A3.4, Volume 1) is considered, chi-square = 11.87, $df = 2$ and $P < 0.001$.

	Substratum		
	Rock	**Seagrass**	**Sand**
Observed	1	11	3
Expected	1.65	4.8	8.55

TABLE A5.8 Density Estimates based on all sightings within the Bay, for all three Regional Surveys

Table A5.8a: Density estimate of dolphins (no. per sq. km) across three substrata in waters ≤10 m based on the mean number of dolphins per sighting event (n=15) over each substratum by the different area of each.

	Substratum		
	Sand	Seagrass	Rock
Mean number/sighting event	5.6	10.8	2.3
Substratum area (sq. km)	15.98	8.9	3.22
Density Estimate	0.35	1.2	0.7

Table A5.8b: Estimated calf density (no. per sq. km) across three substrata in waters ≤10 m based on the mean number of calves per sighting (n=22) over each substratum by the different area of each.

	Substratum		
	Sand	Seagrass	Rock
Mean number/sighting event	0.54	1.8	0.33
Substratum area (sq. km)	15.98	8.9	3.22
Density Estimate	0.03	0.20	0.10

TABLE A5.9 Helicopter Survey. A one-factor Analysis of Variance of estimated dolphin numbers recorded using three different approaches (i.e. visual estimation from the boat or helicopter, and estimates based on aerial photographs). ANOVA indicated a non-significant result.

Source of Variation	*df*	Mean Square	F-ratio	*P*
Different Approaches	2	23.021	0.455	0.647
Error	10	50.627		

APPENDIX 6: TABLES A6.1 - A6.4

TABLE A6.1: Annual photographic survey effort within Jervis Bay

Table A6.1a: Distribution of sampling effort across years per usable photographic survey days in 1990-92, $n = 49$, chi-square = 5.50, $df = 3$, $P > 0.05$.

	Year		
	1990	1991	1992
Observed	9	19	21
Expected	16.6	16.6	16.6

Table A6.1b: Number of sighting events with usable identifications of dolphins across years when usable photographic survey effort was considered (i.e. used to calculate expected values), $n = 60$, chi-square = 0.01, $df = 2$, $P > 0.99$.

	Year		
	1990	1991	1992
Observed	11	23	26
Expected	10.8	23.4	25.8

Table A6.1c: The total number of sightings in the Bay of 69 identified dolphins across years ($n = 284$, see Table A6.1, Volume 1) when usable photographic survey effort is considered (i.e. used to calculate expected values), chi-square = 27.68, $df = 2$, $P < 0.001$.

	Year		
	1990	1991	1992
Observed	53	70	161
Expected	51	111	122

TABLE A6.2: Seasonality of sightings in the Bay of 69 individually identified dolphins

Table A6.2a: Distribution of sampling effort (i.e. usable photographic survey days) across seasons in 1990-92, $n = 49$, chi-square = 8.387, $df = 3$, $P < 0.05$.

	Season			
	AUT	WIN	SPR	SUM
Observed	21	9	9	10
Expected	12.25	12.25	12.25	12.25

Table A6.2b: Total number of sightings of identified dolphins per sighting event across seasons in 1990-92, when adjusted for different effort, $n = 284$, chi-square = 10.85, $df = 3$, $P < 0.05$.

	Season			
	AUT	WIN	SPR	SUM
Observed	116	73	44	51
Expected	122	52	52	58

TABLE A6.3: The location of sightings involving identified animals resighted at least once outside the Bay. Where * denotes a sighting along the coast; ID NO is the abbreviation for an individual's 'identification number'; and (-) indicates no sighting of an identified individual was made.

	Year				
	1990	1991	1992	1993	**Total Number Sightings**
Dolphin ID NO					
1	-	Huskisson Reef Hyams Point Creswell Breakwall Plantation Point	Callala Point Hyams Point Kinghorn Point* (Nth)	Callala Point Dart Point Middle Callala Beach	**9- bay** **1- coast**
10	Plantation Point Huskisson Reef	Middle Callala Beach Cabbage Tree Point Plantation Point Callala Point Sth Callala Point Huskisson Reef	Groper Coast Berrara* (Sth) Tapalla Point Middle Callala Beach Callala Bay Callala Point	-	**13-bay** **1-coast**
18	-	-	Groper Coast Kinghorn Point* (Nth)	-	**1-bay** **1-coast**
47	-	Creswell Breakwall	Plantation Point Hyams Point Berrara*(Sth) Callala Point Creswell Breakwall Callala Point	-	**6-bay** **1-coast**
73	Plantation Point Nth Callala Beach	Middle Callala Beach Nth Callala Beach	Collingwood Beach Hyams Point Kinghorn Point* (Nth) Callala Point	-	**7-bay** **1-coast**

TABLE A6.4: Home range size (sq. km) increments and percentage of maximum known home range size for each of the three individually identified dolphins most frequently sighted in the Bay (ID# 31, 28 and 10). The number of sightings is indicated by N while (-) indicates no change in size since the previous sighting and * indicates an area defined by the limits of the study area, that an animal travelled for a sighting outside the Bay (see Fig. 6.17). The derived mean percentage of maximum known home range size for the given number of sightings and its standard deviation are presented in the last two columns (modified from Shane, 1987).

	ID#31		ID#28		ID#10			
N	**Size**	**% of max.**	**Size**	**% of max.**	**Size**	**% of max.**	**Mean % of max.**	**S.D.**
3	0.27	0.3	1.0	3.5	4.0	5.0	3.0	2.4
4	5.67	7.3	0.5	5.2	25.9	37.0	17.0	17.8
5	28.83	43.3	17.0	63.8	7.4	46.14	51	11.1
6	35.79	87.8	4.2	78.3	3.9	50.94	72	19.1
7	8.18	97.8	-	-	0.02	50.96	76	23.5
8	1.65	99.8	-	-	-	-	76	24.5
9	-	-	0.4	79.7	11.6	65.26	82	17.4
10	-	-	4.0	93.5	26.6*	98.06	97	3.3
11	-	-	1.2	97.6	0.08	98.15	98	1.2
12	0.11	100	-	-	-	-	98	1.3
13	-	-	-	-	1.3	99.75	99	0.1
14	-	-	0.7	100	0.2	100	100	0
15	-	-						
Total	**80.5**		**29.0**		**81.0**			

APPENDIX 7: TABLES A7.1 - A7.10

TABLE A7.1: Analysis of Group Composition of land-based sightings. A *t*-test indicated no significant difference in the mean number of animals per sighting event, $n = 77$, between events with or without calves. Pooled variances $t = 1.038$, $df = 75$ and $P = 0.303$. Power = 0.2.

Calves	N	**Mean**	**SD**
Absent	62	13.5	10.6
Present	15	10.5	7.0

TABLE A7.2: Analyses of Substrata for land-based sightings

Table A7.2a: The total number of animals per sighting event across three substrata, where substratum was recorded or able to be determined. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Substratum	2	168.2	1.6	0.2
Error	65	107.8		

Table A7.2b: The total number of calves per sighting event across substratum where known. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Substratum	2	0.32	0.61	0.55
Error	65	0.53		

TABLE A7.3: Analyses of Environmental Variables for land-based sightings (i.e. Season and Time of Day)

Table A7.3a: Distribution of 'effort' (i.e. returned questionnaires) per day sightings were recorded across seasons, $n = 62$, chi-square = 3.806, $df = 3$, $P > 0.05$.

	Season			
	AUT	WIN	SPR	SUM
Observed	20	14	10	18
Expected	15.5	15.5	15.5	15.5

Table A7.3b: The total number of animals per sighting event across seasons. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	3	121.8	1.2	0.31
Error	73	100.2		

Table A7.3c: The total number of calves per sighting event across seasons. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	3	0.43	0.91	0.44
Error	73	0.47		

Table A7.3d: Distribution of sighting events across three time of day categories (i.e. morning = < 1000, midday = 1000 - 1359, afternoo*n* = ≥1400) where time was recorded, $n = 70$, $df = 2$, chi-square = 0.542 and $P > 0.95$.

	Time of Day		
	Morning	Midday	Afternoon
Observed	26	21	23
Expected	23.3	23.3	23.3

Table A7.3e: The total number of animals per sighting event across three time of day categories where time was recorded. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Time of Day category	2	72.3	0.7	0.52
Error	67	109.4		

Table A7.3f: The total number of calves per sighting event across three different time of day categories where time was recorded. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Time of Day category	2	0.02	0.04	0.959
Error	67	0.52		

TABLE A7.4: Analysis of Group Composition for opportunistic vessel-based sightings. A *t*-test indicated no significant difference in the mean number of animals per sighting event, $n = 27$, between events with or without calves. Pooled variances $t = 1.622$, $df = 25$ and $P = 0.117$. Power = 0.32.

Calves	N	Mean	SD
Absent	23	10.2	10.3
Present	4	19.2	9.9

TABLE A7.5: Analyses of Depth and Substratum for opportunistic vessel-based sightings

Table A7.5a: A *t*-test indicated no significant difference in the mean number of animals sighted between shallow (≤8 m) or deep (>8 m) waters where depth was recorded, $n = 25$. Pooled variances $t = 0.70$, $df = 23$ and $P = 0.49$. Power = 0.1.

Depth	**N**	**Mean**	**SD**
Shallow	15	13.1	12.3
Deep	10	9.9	8.9

Table A7.5b: Distribution of sighting events, $n = 25$, across different substratum where known, when the area of each is considered, chi-square = 2.536, $df = 2$ and $P > 0.05$.

	Substratum		
	Rocky	Seagrass	Sand
Observed	2	2	21
Expected	0.7	1.8	22.5

TABLE A7.6: Analyses of Environmental Variables for opportunistic vessel-based sightings (i.e. Season, Quadrant and Time of Day)

Table A7.6a: Distribution of sightings per day across seasons, $n = 24$, chi-square = 2.332, $df = 3$, $P > 0.05$. Where 0 indicates no sighting data.

	Season			
	AUT	WIN	SPR	SUM
Observed	9	8	7	0
Expected	6	6	6	6

Table A7.6b: The total number of animals per sighting event across seasons. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	2	15.5	0.13	0.88
Error	24	120.4		

Table A7.6c: Distribution of sightings across quadrants of the Bay, $n = 27$, $df = 3$, chi-square = 7.813, $P > 0.05$.

	Quadrant			
	SW	NW	NE	SE
Observed	5	13	5	4
Expected	6.75	6.75	6.75	6.75

Table A7.6d: The total number of animals per sighting event across quadrants of the Bay. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Quadrant	3	142.0	1.3	0.296
Error	23	108.5		

Table A7.6e: No association is indicated for the distribution of sighting events across three time of day categories (i.e. morning = < 1000, midday = 1000 - 1359, afternoon = ≥1400), *df* = 2, chi-square = 3.54 and $P > 0.05$.

	Time of Day		
	Morning	Midday	Afternoon
Observed	5	13	9
Expected	9	9	9

Table A7.6f: The total number of animals sighted across three time of day categories. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Time of Day category	2	230.4	2.25	0.13
Error	24	102.5		

TABLE A7.7: Analysis of Group Composition for Dolphin Watch Cruise vessel. A *t*-test indicated no significant difference in the mean number of animals per sighting event, $n = 444$, with or without calves. Pooled variances $t = 0.47$, $df = 442$ and $P = 0.638$. Power = 0.07.

Calves	N	Mean	SD
Absent	417	8.92	8.64
Present	27	8.11	8.7

TABLE A7.8: Analyses of Environmental Variables for Dolphin Watch Cruise vessel (i.e. Season, Area of the Bay and Time of Day)

Table A7.8a: Distribution of "cruise effort" across seasons per day sightings were recorded, $n = 239$, chi-square = 78.14, $df = 3$, $P < 0.001$.

	Season			
	AUT	WIN	SPR	SUM
Observed	73	10	52	104
Expected	59.75	59.75	59.75	59.75

Table A7.8b: Distribution of sighting events across seasons when "sighting effort per cruise day" is considered, $n = 444$, chi-square = 10.094, $df = 3$, $P < 0.05$.

	Season			
	AUT	WIN	SPR	SUM
Observed	139	11	77	217
Expected	135.6	18.6	96.6	193.2

Table A7.8c: The total number of animals sighted across seasons. ANOVA indicates a significant result. Cochran's test critical $C = 0.38$ at $P = 0.05$ > observed $C = 0.34$, hence data are homogeneous.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	3	362.757	4.998	0.002
Error	440	72.578		

Table A7.8d: Peritz multiple comparison procedure of the mean number of dolphins per sighting event across seasons where alpha = 0.05, **S** indicates a significant result, and NS a non-significant result.

Season	**AUT**	**WIN**	**SPR**	**SUM**
AUT	NS	-	-	-
WIN	NS	NS	-	-
SPR	NS	NS	NS	-
SUM	NS	NS	**S**	NS

Table A7.8e: The total number of calves sighted across seasons. ANOVA indicates a significant result but raw data were heteroscedastic (i.e. Cochran's test critical $C = 0.29$ at $P = 0.05 <$ observed $C = 0.54$). After $\log_{10}$ transformation the result remained significant but variances were unable to be stabilised (i.e. observed $C = 1.14$)

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Season	3	0.045	5.939	0.001
Error	440	0.008		

Table A7.8f: The total number of animals sighted across zones. ANOVA indicates a significant result. Cochran's test critical $C = 0.20$ at $P = 0.05 >$ observed $C = 0.15$.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Zones	9	285.5	4.07	0.000
Error	431	70.2		

Table A7.8g: Peritz multiple comparison procedure of the mean number of dolphins per sighting event across Zones in the Bay where alpha = 0.05, **S** indicates a significant result, and NS a non-significant result.

Zones	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	NS	-	-	-						
2	**S**	NS	-	-						
3	**S**	NS	NS	-						
4	NS	NS	NS	NS						
5	**S**	NS	NS	NS	NS					
6	NS	NS	**S**	NS	**S**	NS				
7	NS	NS	NS	NS	NS	NS	NS			
8	NS	NS	NS	NS	NS	NS	NS	NS		
9	NS	NS	NS	NS	NS	NS	NS	NS	NS	
10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table A7.8h: The total number of calves sighted across zones. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Zones	9	0.13	1.1	0.36
Error	431	0.12		

Table A7.8i: An association was indicated for the distribution of sighting events across four time of day categories (i.e. morning = < 1000, midday = 1000 - 1359, afternoon = 1400 - 1759, evening = ≥1800), n = 437, df = 3, chi-square = 114.87 and $P < 0.001$.

	Time of Day			
	Morning	Midday	Afternoon	Evening
Observed	11	204	149	73
Expected	109.25	109.25	109.25	109.25

Table A7.8j: The total number of animals sighted across four time of day categories. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Time of Day category	3	117.4	1.6	0.19
Error	433	74.4		

Table A7.8k: The total number of calves sighted across four time of day categories. ANOVA indicates a non-significant result.

Source of Variation	***df***	**Mean Square**	**F-ratio**	***P***
Time of Day category	3	0.06	0.46	0.17
Error	433	0.18		

TABLE A7.9: Abundance Patterns in Dolphin Watch Cruise data

Table A7.9a: Distribution of dolphin numbers, $n = 3938$, across years when adjusted for different annual 'cruise effort', n=239, chi-square = 4.446, $df = 2$ and $P > 0.05$.

	Year		
	1990	1991	1992
Observed	706	1768	1464
Expected	658	1780	1500

Table A7.9b: Distribution of calves, $n = 36$, across years when adjusted for different annual 'cruise effort', n=239, chi-square = 9.798, $df = 2$ and $P < 0.05$.

	Year		
	1990	1991	1992
Observed	7	7	22
Expected	6	16	14

Table A7.9c: Distribution of dolphin numbers across seasons, $n = 3{,}938$ when 'effort per cruise days' (see Table A7.8a) is considered, chi-square = 15.45, $df = 3$ and $P < 0.01$.

	Season			
	AUT	SPR	SUM	WIN
Observed	1311	855	1623	149
Expected	1201	866	1713	158

Table A7.9d: Distribution of calves across seasons, $n = 36$, when 'effort per cruise days' (see Table A7.8a) is considered, chi-square = 26.32, $df = 3$ and $P < 0.001$.

	Season			
	AUT	SPR	SUM	WIN
Observed	25	2	8	1
Expected	11	8	16	1

TABLE A7.10: Distribution of opportunistic feeding observations across quadrants of the Bay, $n = 15$, chi-square = 6.61, $df = 3$, $P > 0.05$.

	Season			
	NW	NE	SW	SE
Observed	2	3	8	2
Expected	3.75	3.75	3.75	3.75