

Shannon dolphin tour boat monitoring report – 2005

Simon Berrow, Andrew Young and Janelle Atkinson

Shannon Dolphin and Wildlife Foundation, Merchants Quay, Kilrush, Co. Clare

Tel: 065 6052326. Email: SDWF@oceanfree.net

Introduction

The Shannon estuary is a candidate SAC for bottlenose dolphins *Tursiops truncatus*. Commercial dolphin-watching is carried out within the estuary and consent is given by National Parks and Wildlife Service to those operators wishing to dolphin-watch. Under Notifiable Actions, operator's are required to adhere to certain conditions which includes "providing monitoring data for each trip in the prescribed form as outlined in the data sheet Tour Boat Monitoring Protocol 2000".

The Shannon Dolphin and Wildlife Foundation (SDWF) were contracted by National Parks and Wildlife Service to carry out this monitoring during the 2005 season.

Methodology

Operators are required to fill out a log-sheet for each dolphin-watching trip they carry out. Each log-sheet prompts for information on trip length, time to locate dolphins, number of groups and dolphins observed, presence and estimated number of calves, location of dolphins and the time for which each group was watched. A new log sheet was designed for 2005 to aid record keeping and in particular for indicating the route taken and the position of the dolphins watched (see Appendix II).

Photo-identification is carried out on a sample of trips (target 10% of total trips) to determine which dolphins are being watched from tour boats. This also provides an opportunity to cross reference operator's records with SDWF records to assess interpretation of the monitoring indices that they are required to record.

Results

Of the 414 log-sheets received during 2005, 80 (19.3%) log-sheets had some data missing (on 70 trips from Kilrush and 10 from Carrigaholt). Of these, 62 trips from Kilrush had data missing from the actual trip (time or location located, group size etc) and five from Carrigaholt, the remainder were missing data on weather conditions and sea-state.

Eight monitoring indices were collected during 2005 and are presented below. Two vessels worked out of Kilrush (Dolphin Discovery and from July, Rogue Trader). Some trip summary data for the two vessels are presented separately as they have very different vessel performance and combining all data from Kilrush would make comparisons with previous years meaningless.

1. *Number of operators and trips*

Five companies/individuals operating up to seven dolphin-watching vessels were given consent by the National Parks and Wildlife Service to dolphin-watch in the Shannon estuary cSAC during 2005 (Appendix I). This includes two new operators; Michael Fennell, operating mainly from Kilbaha and Carrigaholt, and Cathal Blunnie, operating from Kilrush. Robert Stack who operates from Doon near Ballybunion did not carry out any trips during 2005, despite obtaining permission, due to residual electrical and mechanical problems resulting from his vessel sinking on its mooring in 2003.

During the 2005 season trip records were received for a total of 414 trips. No trip records were received from Michael Fennell (up to 13 January, 2006) despite numerous reminders. An estimated 10 additional trips from this operator could be added to the total. The total reported number of trips were 40 (9%) less than in 2003 with trips from Carrigaholt down 13.7% and Kilrush down 2.5% (No figures available from 2004). Of the total number of trips, 214 (51.7%) departed from Carrigaholt and 200 (48.3%) departed from Kilrush in County Clare (Table 1). Ten trips were carried out in March, which is before the permitted period stated by the NPWS (1 April – 31 October). As with previous seasons, two-thirds of trips (62.4%) were carried out during July and August.

Table 1. Number of dolphin-watching trips carried out from two ports in County Clare in the Shannon estuary during 2005

Month	Port		Total (%)
	Carrigaholt	Kilrush	
March	6	4	10 (2.4)
April	9	5	14 (3.4)
May	22	11	33 (8.0)
June	33	29	62 (15.0)
July	69	65	131 (32.4)
August	63	62	109 (30.2)
September	12	17	22 (7.0)
October	-	7	7 (1.7)
TOTAL	214	200	414

Note: it is estimated that an additional 10 trips were made by Michael Fennell, but no trip records were received.

2. *Length of trip*

The mean length of each dolphin-watching trip was very similar (within 10 minutes) between the two main operators. There was a slight increase (+0.7%) in trip length from Carrigaholt compared with

2003 and a 4% decrease from Kilrush compared with the same year. Vessels from the two ports largely watch different groups of dolphins, with the Carrigaholt boat tending to watch dolphins to the west in the outer estuary and Kilrush boats watching dolphins, upriver around Tarbert/Killimer and around Moneypoint and west as far as Beal bar. The decrease in trip length by Dolphin Discovery from Kilrush suggests dolphins might have been distributed closer to Kilrush during 2005 than in previous years but there was little change in dolphin distribution adjacent to Carrigaholt. Rouge Trader had significantly longer trips (mean of 37% longer than other Kilrush vessel).

Table 2. Mean length (minutes) of dolphin-watching trips from 2000 – 2005 (no data available from 2004 available)

Port	Year				
	2000	2002	2002	2003	2005
Carrigaholt	119.6	124.9	123.6	117.8	118.6 ¹
Kilrush (DD)	133.1	129.7	125.6	115.2	110.6 ²
Kilrush (RT)	-	-	-	-	151.3

¹No data for 2 trips, ²No data for 48 trips (25.5%)

Table 3. Mean time (minutes) to locate dolphins from the two ports during 2005 season (only those trips which located dolphins are included)

Month	Port		
	Carrigaholt ¹	Kilrush ¹	
Vessel		DD	RT
March	24.2	32.5	--
April	37.8	42.0	--
May	24.7	34.5	--
June	20.3	44.6	--
July	23.3	35.2	55.0
August	26.3	35.6	63.0
September	34.4	42.5	77.5
October	-	29.0	--
Mean	25.0	37.1	65.8

¹No data for 2 trips

3. Time to locate dolphins

Dolphins were located on 98.1% of trips (210) from Carrigaholt and 97.8% (184) trips from Kilrush. Only 4 trips from Kilrush and 4 trips from Carrigaholt failed to see dolphins. On all but two occasions the species observed was bottlenose dolphin *Tursiops truncatus*. A group of 40 common dolphins *Delphinus delphis* were watched in the outer estuary inside Loop Head on 18 August and a single harbour porpoise *Phocoena phocoena* was observed off Kilcloher Head on 2 September.

As in previous years, dolphins were located more quickly from Carrigaholt (25 minutes) than from Kilrush (37.1 minutes) in all months. The mean from Carrigaholt was very similar to 2003 (24.8 minutes) but was 12% less from Kilrush in 2005 compared with 2003 (45.3 minutes). This supports the suggestion that dolphins were distributed closer to Kilrush during 2005 than in previous years.

4. Location of dolphin groups

The tour boat operating from Carrigaholt located most dolphins in Zones 1 (64%) and 3 (21%) (Table 4), which is consistent with 2003. Tour boats from Kilrush tended to watch dolphins in Zones 6 (33%), 7 (21%), 3 (17%) and 5 (13%). This differs from 2003 with the greatest increase in Zone 7, which is adjacent to the Shannon ferry route, and decrease in Zone 3, which is off Beal bar. Thus there was less overlap with the Carrigaholt vessel in the areas (and presumably the dolphins) watched than in previous years.

Table 4. Zones in which tour boats watched dolphins from each port during 2005 (see Appendix II for map)

Zone	Carrigaholt ¹	Kilrush ²	Total
	No (%)	No (%)	No (%)
1	136 (64.1)	5 (2.5)	141 (34.7)
2	32 (15.1)	7 (3.6)	39 (9.6)
3	44 (20.7)	32 (16.5)	76 (18.7)
4	-	21 (10.8)	21 (5.2)
5	-	25 (12.8)	24 (6.2)
6	-	6 (3.2)	63 (15.5)
7	-	41 (21.1)	37 (10.1)

¹ No data for 2 trips, ² No data for 4 trips

5. *Time on dolphins*

The total time on dolphins for all vessels during 2005 was calculated as 11,702 minutes or 195 hours (Table 5). This is an overall decline of 13% on 2003. The decline was greater from Carrigaholt vessels (19%) compared with Kilrush vessels (6%) but follows the trend (albeit at a greater rate) shown between 2002 and 2003. The requirement to spend only 30 minutes per group per trip was exceeded on 12 (5.6%) occasions from Carrigaholt, but only by a maximum of 6 minutes and 17 (8.5%) occasions from Kilrush, with a maximum of 45 minutes on a group of dolphins. The mean time on dolphins per trip was 28.0 minutes from Carrigaholt, with up to 2.2 groups of dolphins may be watched per trip and 29.1 minutes from Kilrush. Thus tour boats do occasionally spend greater than 30 minutes per group per trip but the overall mean is within the time allowed under the Code of Conduct.

Table 5. Total time (minutes) on dolphins from the two ports during 2005 season (different groups observed within a trip are indicated)

Month	Carrigaholt						Kilrush ¹				
	G1	G2	G3	G4	G5	<i>Total</i>	G1	G2	All	<i>Total</i>	<i>Total</i>
March	79	29	25	17	0	150	130	0	0	130	280
April	142	36	64	4	0	246	155	0	0	155	401
May	347	139	87	30	1	604	235	0	37	235	839
June	474	287	223	51	8	1043	722	40	26	722	1765
July	1286	582	182	18	11	2079	1920	3	25	1920	3999
August	1284	248	23	0	0	1557	1720	0	36	1720	3277
September	196	84	19	0	0	302	460	0	0	460	762
October	-	-	-	-	-	-	212	0	0	212	212
Total											
-minutes	3808	1410	623	120	20	5981	5554	43	124	5721	11702
- hours	63.4	23.5	10.4	2.0	0.3	99.7	92.6	0.7	2.1	95.4	195

¹ No data for 10 trips

6. *Number of dolphins and groups*

The number of groups watched per month is consistent throughout the year from the two ports. As in previous seasons, the tour boat from Carrigaholt tended to watch more groups of dolphins on each trip (Table 6). The number seen per trip from Carrigaholt was 12% (2.2 compared with 2.5) lower than reported in 2003. The mean number of groups watched from Kilrush was consistent at 1.1 groups per trip.

There were large differences in the mean group size between the two ports and when compared with 2003. Group size of dolphins watched from Kilrush was consistent with 2003 at 11.1 compared with 11.2 dolphins per group but the group size from Carrigaholt declined by 59.4% from 26.1 in 2003 to 10.6 in 2005. In previous years the mean group size in September and October was much higher from both ports than earlier in the season but this trend is not apparent in data from Carrigaholt and although present in the Kilrush data is not as pronounced as in previous years.

Table 6. Mean number of dolphins and dolphin groups encountered from the two ports during 2005

Month	Carrigaholt		Kilrush ¹	
	Groups	Group size	Groups	Group size
March	2.0	6.8	1.0	13.3
April	2.2	10.5	1.0	6.2
May	2.3	9.2	1.4	7.6
June	2.7	10.0	1.1	8.9
July	2.0	11.1	1.0	7.3
August	2.2	11.6	1.1	10.7
September	1.7	13.1	1.0	16.5
October	-	-	1.0	12.7
Mean	2.2	10.6	1.1	11.1

¹ No data for 16 trips

7. *Number of groups with calves*

Of the 413 groups watched from Carrigaholt, 311 (75%) had calves present. From Kilrush, of the 203 groups watched, 47 (23%) were reported with calves present, however this is likely be an underestimate as the presence of calves is not always recorded. These data do show that breeding groups are subjected to dolphin-watching in the Shannon estuary, especially from Carrigaholt.

8. *Individual dolphins watched from tour boats*

The individual dolphins watched from tour boats was recorded using photo-identification. During 2005, 43 trips were sampled (23 from Kilrush and 20 from Carrigaholt), which was 10.4% of the total carried out (Table 7), which met the target of 10% for the season. Dolphins were observed on 42 of

these trips and photographs were taken on all trips with dolphins. A total of 68 individual dolphins were identified and of these 44 (65%) had been previously recorded (Figure 1) and 24 were previously unrecorded (see Appendix III). The large number of ‘new’ dolphins in the catalogue can be explained by the use of digital photography during 2005. A Canon EOS D20 replaced a Canon EOS 50 as the main camera used during this monitoring and the high resolution digital images obtained made it much easier to record identifiable features such as small nicks and notches which could go un-noticed on slide or print film.

Table 7. Number of identifiable dolphins recorded from tour boats, 1999-2005

Year	No. of trips	No of identified dolphins	Number (%) of dolphins recorded from tour boats in previous years				
			1999	2000	2001	2002	2003
1999	11	22	-	-	-	-	-
2000	25	35	13 (37%)	-	-	-	-
2001	27	33	10 (30%)	19 (58%)	-	-	-
2002	31	42	11 (31%)	18 (50%)	24 (67%)	-	-
2003	57	86	13 (15%)	31 (38%)	39 (45%)	33 (38%)	-
2005	43	68	13 (19%)	21 (31%)	20 (30%)	22 (32%)	39 (57%)

Of those dolphins identified from tour boats during 2005, just over one-half (57%) were also recorded from tour boats in 2003 and around 30% during 2000, 2001 and 2002 (Table 7). This suggests that the same dolphins are watched each year from tour boats. The proportion of dolphins re-sighted each year is shown in Figure 1. This shows that most dolphins are recorded only once with a corresponding decrease with time. Only five individual dolphins have been recorded each year, 1999-2005.

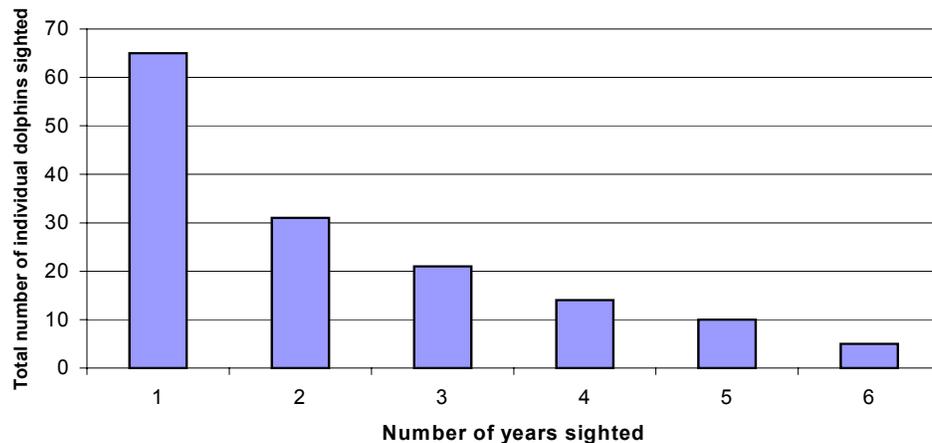


Fig 1. Frequency of re-sightings of individual dolphins over a six year period (1999-2005)

Comparison between SDWF data and operators logbooks

Data from monitoring forms received from each operator were compared with data recorded by the SDWF for the same trip. This enabled a comparison to be made between the operators interpretation of the monitoring data with that made by the SDWF researchers. A summary of this comparison is shown in Table 8. Only differences in the most important monitoring indices are shown.

1. The mean difference in recorded trip length from Kilrush was 11.65 minutes and from Carrigaholt, 6.71 minutes. In Kilrush, this can be explained by the additional time required to clear the lock gates at the Creek Marina, Kilrush. Operators might not record exactly the time the tour boat clears the lock gates and begins its search for dolphins.
2. The small difference in the number of groups observed from Kilrush is a consequence of the few groups seen per trip and small standard deviation. Conversely, defining when a group starts and finishes in the outer estuary where Dolphinwatch Carrigaholt watches has caused difficulties in the past. A definition of a group has been agreed and this has reduced the error in recording this index.
3. Differences in group size are consistent between the two main operators.
4. Probably the most important index presented here is the difference in time on dolphins. A mean difference of 3.6 minutes is around 10% of the maximum allowed (30 minutes) per group per trip, however as the mean number of groups watched per trip varies from 1.1 to 2.2, this percentage is lower overall.

Table 8. Comparison between data collected by tour operators and the SDWF on the same trip.

Monitoring Index	Dolphin Discovery (n=20)	Draocht (n=17)	Rogue Trader (n=1)	Mean (n=38)
Time to locate dolphins	11.65	6.71	5	9.38
Number of groups	0.20	0.88	0	0.51
Group size	5.04	5.03	0	4.98
Time on dolphins	4.71	3.24	0	3.61

Summary

This is the sixth season of monitoring dolphin tour boats in the Shannon estuary. Trip records were received from 414 dolphin-watching trips, which was a 9% decline on 2003 and 11.5% decrease on 2002. This follows a trend with trip numbers down each year since 2001.

The length of trip and time to locate dolphins from Kilrush were less than in previous years, which is attributed to dolphins distributed closer to Kilrush. This is supported by information where dolphins were observed, with an increase in dolphins in Zones 5 (Carrig) and 6 (Moneypoint). Data from Carrigaholt was consistent although more dolphins were watched in Zone 2 (Ballybunnion) and fewer in Zone 3 (Beal bar). As both ports had fewer groups watched in Zone 3, this might indicate fewer dolphins in this zone, which historically has been a good area for dolphin-watching.

The other interesting data from this season concerns the number and size of dolphin groups. Both were lower from Carrigaholt in 2005 than in 2003, indeed the mean group size was greater from boats from Kilrush for the first time since this monitoring began. The large groups observed in September and October in previous years was absent during 2005, however few trips were carried out in October. Clearly there are inter-annual changes in the distribution and group composition of dolphins in the estuary and only long-term monitoring will help to understand trends.

Recommendations

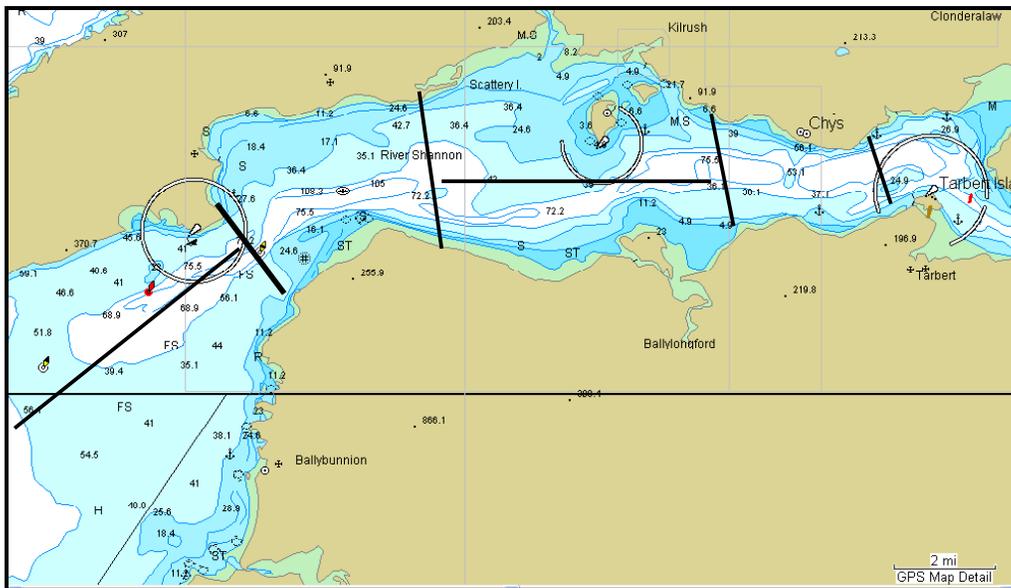
The following recommendations for the 2006 season should be considered:

- i) A revision of the map on the monitoring forms, to account for the high proportion of trips carried out by Carrigaholt boats in the outer estuary, and presently off the map. Separate forms, with different maps, for Kilrush boats and Carrigaholt boats should be considered.
- ii) There were a lot of missing data and incomplete forms, especially from Kilrush, during 2005. Operators should be requested to try and fill out monitoring forms as carefully and as accurately as possible.
- iii) Tour boat forms were received into 2006 and in some instances trip records were missing. Operators should be requested to send in complete monitoring forms one month after the season is finished (end of November). If possible forms should be sent in through the season to avoid a back-log of trip records from building up.
- iv) Operators are also asked at the end of the season to check all trips have been recorded and log-sheets compiled.

Appendix I: Vessels operating dolphin-watching trips in the Shannon estuary during 2005

Company	Port	Vessel	Number of trips
Dolphinwatch	Carrigaholt	Draoicht	214
Scattery Island Ferries	Kilrush	Dolphin Discovery	188
Michael Fennell	Kilbaha	Deva	? (c10)
Lisroe Marine services	Kilrush	Rouge Trader	12
Robert Stack	Ballybunnion	Lady Elish	0

Appendix II: Tour boat monitoring form, showing zones in which dolphins were watched



Appendix III: Individual dolphins recorded from tour boats 1999-2005

Identification No	Year						Total years sighted
	1999	2000	2001	2002	2003	2005	
1		*			*	*	3
2			*	*	*	*	4
4	*	*			*		3
5						*	1
6		*			*		2
7			*	*		*	3
8	*	*	*	*	*	*	6
10				*	*		2
11	*	*	*	*	*	*	6
13						*	1
14				*	*		2
15						*	1
16				*	*		2
18		*	*	*	*	*	5
19	*	*	*	*	*	*	6
20		*		*	*	*	3
21				*	*	*	3
23			*		*		2
24		*	*		*	*	4
27	*			*	*	*	4
28	*	*	*	*	*	*	6
30		*					1
31					*	*	2
33		*	*		*		3
34	*	*	*	*	*	*	6
35		*	*	*	*		4
36		*	*		*		3
38	*		*		*		3
40		*		*			2
41		*	*		*		3
42		*				*	2
43				*			1
44	*		*	*			3
45				*	*	*	3
46						*	1
47	*	*	*	*			4
49			*	*	*		3
50				*	*		2
51				*	*	*	3
52	*	*			*	*	4
53	*		*	*	*		4
54	*	*	*		*	*	5
55	*	*			*	*	4
56					*		1
57	*			*		*	3
58	*						1
59		*	*	*	*	*	5
60	*	*		*	*	*	5
61		*		*			2
62	*	*	*	*	*		5
63		*					1
64		*	*	*	*	*	5
65		*					1
66		*		*	*		3

67		*	*	*	*			4
68		*		*				2
69					*			1
70		*			*			2
71		*			*	*		3
74					*			1
75					*			1
76				*	*	*		3
77	*	*		*	*			4
78		*						1
79					*			1
80		*	*	*	*	*		5
81					*	*		2
82	*			*	*			3
83	*	*	*		*	*	*	5
84				*	*	*	*	3
85		*			*	*	*	3
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91				*				1
92			*	*	*			3
93		*	*	*	*			4
94			*	*	*			3
95			*			*	*	2
96			*	*	*	*	*	4
97	*		*	*	*	*	*	5
98		*	*	*	*	*	*	5
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128		*						1
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131				*		1
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141	*					1
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143	*					1
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145				*		1
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147				*	*	2
148					*	1
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166					*	1
167					*	1
168					*	1
169					*	1
174					*	1
175					*	1
