

# Dolphin tour boat monitoring – 2001

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## Introduction

As part of accreditation for dolphin-watching in the Shannon estuary candidate SAC, tour boat operators are requested to provide details for each dolphin-watching trip for monitoring purposes. The Shannon Dolphin and Wildlife Foundation (SDWF) were contracted by Dúchas to manage the monitoring on their behalf for the 2001 season. This is the second tour boat monitoring report from the Shannon estuary SAC.

## Methodology

Operators are required to fill out a logsheet (see Appendix for revised monitoring form) for each dolphin-watching trip they carry out. The rationale is to provide basic data on the behaviour of the tour boats from which monitoring indices could be developed. As operators are engaged in running tours and are not trained researchers, these data should be relatively easy to record, be as objective and unequivocal as possible and be sensitive to changes in the distribution, abundance and behavior of dolphins.

For the 2001 season the trip record form was revised to enable all the trips each day to be recorded on one logsheet. The rationale was to encourage operators to complete logsheets at the end of each day throughout the season to improve the quality of the data recorded. Operators were also requested to submit trip record to the SDWF at the end of each week, but this was not achieved during 2001.

In this report three additional monitoring indices are presented namely: trip length, location and photo-identification of dolphins watched from tour boats.

## Results

### *1. Number of operators and trips*

Four companies/individuals operating 7 dolphin-watching vessels were granted permission to dolphin-watch in 2001, 2 vessels less than in 2000. Of these four companies actually used 5 vessels during the season and these are listed in Annex I. Four of these vessels are motorized with only one yacht (Anna M) being used. The data from the Anna M are usually presented separately as the route taken by this yacht is strongly influenced by wind direction and passengers are also out to sail as well as see dolphins.

During the season trip records were received for a total of 473 trips, 217 (45.9%) from Kilrush, 243 (51.4%) from Carrigaholt and 13 (2.7%) from Doon near Ballybunnion, Co. Kerry (see Table 1). Vessels are licensed to carry passengers by the Department of the Marine from April 1st to 31st October. The first trip occurred on 15<sup>th</sup> April but only 7 trips were carried out during this month and the last trip was carried out on 29<sup>th</sup>

October. Despite dolphin-watching being conducted over nearly 6 months, the season was peaked with 69.1% of trips carried out during July and August.

**Table 1. Number of dolphin-watching trips carried out in the Shannon estuary during 2001 season.**

Month	Port			Total (%)
	Carrigaholt	Doon	Kilrush	
April	-	-	7	7 (4.9)
May	4	-	20	24 (5.1)
June	36	2	41	79 (16.7)
July	83	6	65	154 (32.6)
August	100	5	68	173 (36.6)
September	20	-	13	33 (7.0)
October	-	-	3	3 (0.6)
<b>TOTAL</b>	<b>243</b>	<b>13</b>	<b>217</b>	<b>473</b>

The reported number of trips is an increase of 17.4% on the 403 trips reported in 2000 and an increase of 47% on the 252 trips carried out in 1999.

## 2. Length of trip

The mean length of each dolphin-watching trip was greater in 2001 than 2000 from Carrigaholt but decreased slightly from Kilrush (Table 2). The difference in mean trip length between Kilrush and Carrigaholt declined from 13.5 minutes in 2000 to only 4.8 minutes in 2001.

**Table 2. Mean length of dolphin watching trips during 2000 and 2001 (minutes).**

Port	Year	
	2000	2001
Carrigaholt (Draiocht)	119.6	124.9
Carrigaholt (Anna M)	258.8	194.5
Kilrush	133.1	129.7
Doon	-	245.0

### 3. Time to locate dolphins

Although influenced by many factors, the time to locate dolphins is one of the most important variables. Dolphins were located on 96.2% of trips from all ports combined, with only 10 trips from Kilrush and 8 trips from Carrigaholt (3 by the Anna M) failing to see dolphins. As reported for the 2000 season, dolphins were located more quickly from Carrigaholt (mean 27.2 minutes) than from Kilrush (mean 45.7 minutes) (Table 3).

**Table 3. Mean time to locate dolphins (minutes) from different ports in the Shannon estuary during 2001 season. Only those trips which located dolphins are included.**

Month	Port			
	Carrigaholt	Doon	Kilrush	(Anna M)
April	-	-	41.0	-
May	44.0	-	39.2	-
June	21.5	12.5	42.4	53.2
July	24.3	23.5	46.8	35.0
August	29.2	34.0	47.9	70.0
September	32.1	-	53.4	-
October	-	-	37.5	-
MEAN	27.2	25.8	45.7	54.0

One of the major challenges of this monitoring system is to distinguish between natural variation in the distribution, abundance and behaviour of the dolphins and that which may be caused by the activities of tour boats. The mean time to locate dolphins in 2000 was 27.8 minutes from Carrigaholt and 45.4 minutes from Kilrush and the data from 2001 is remarkably consistent.

### 4. Location of dolphin groups

In order to determine where tour boats locate and watch dolphins, the Shannon estuary was divided into 7 zones (see Fig. 1). During both 2000 and 2001, tour boats from Carrigaholt located most dolphins in zones 1 and 3. Vessels from Kilrush located dolphins over a wider range but most were located in zone 3 and to a lesser extent zones 5 and 1. Overall most dolphin groups were located in zone 3 off Kilcredaun Head and along the channel at Beal Bar (Table 4).

**Table 4. Location where trips watched dolphins during the seasons 2000 and 2001.**

Location	Carrigaholt (Draiocht)		Carrigaholt (Anna M)		Kilrush		Doon		Total
	2000	2001	2000	2001	2000	2001	2000	2001	2001
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
1	81 (44.5)	92 (45.5)	10 (43.5)	6 (20.0)	12 (7.4)	20 (9.9)	2 (28.6)	1 (7.7)	119 (26.6)
2	44 (24.2)	27 (13.4)	7 (30.4)	5 (16.7)	9 (5.6)	11 (5.4)	4 (57.1)	10 (76.9)	53 (11.8)
3	56 (30.8)	83 (41.1)	6 (26.1)	19 (63.3)	68 (42.0)	93 (45.8)	1 (14.3)	2 (15.4)	197 (43.9)
4	0	0	0	0	18 (11.1)	15 (7.4)	0	0	15 (3.3)
5	2 (1.1)	0	0	0	26 (16.1)	33 (16.3)	0	0	33 (7.4)
6	0	0	0	0	23 (14.2)	16 (7.9)	0	0	16 (3.6)
7	0	0	0	0	6 (3.7)	15 (7.4)	0	0	15 (3.3)

### 5. Time on dolphins

The total time on dolphins for all vessels during 2001 was calculated as 19,012 minutes or 316.9 hours (Table 5) which is an increase of 44.5% from 2000 (219.3 hrs). The Code of Conduct restricts vessels to 30 minutes per group per trip and this was exceeded on 150 (31.7%) occasions. However it can be very difficult to determine what constitutes a group of dolphins and when an encounter starts and finishes and this needs to be explored further. Prior to the start of the 2001 season a total overall time on dolphins of 200 hours was agreed by operators and Dúchas which was exceeded by 58%.

### 6. Number of dolphins and groups

The number of groups watched per trip varied greatly depending on the port. On 50.5% of trips from Kilrush only one group of dolphins were watched per trip, 24.8% of trips watched 2 groups, 15.5% watched 3 groups, 7.3% watched 4 groups and 1.9% of trips watched 5 groups per trip. In comparison, only 20.0% of trips from Carrigaholt (Draiocht) watched one group, with 34.6% watching 2 groups, 24.4% watching 3 groups and 13.7% watching 4 groups per trip. On 7.3% of occasions 5 or 6 groups were watched per trip from Draiocht. Up to 3 groups per trip were watched by Anna M from Carrigaholt and from Doon Co Kerry.

As reported in 2000, on average a higher number of dolphin groups were located per trip from Carrigaholt and these groups tended to be larger (Table 6). However from both Kilrush and Carrigaholt, although the number of groups watched per trip increased the mean group size decreased.

**Table 6. Mean number of dolphins and dolphin groups encountered from different ports in the Shannon estuary during 2001 season.**

Month	Carrigaholt (Draiocht)		Carrigaholt (Anna M)		Doon		Kilrush	
	Groups	Dolphins	Groups	Dolphins	Groups	Dolphins	Groups	Dolphins
	April	-	-	-	-	-	-	1.8
May	2.3	7.2	-	-	-	-	1.2	11.3
June	3.3	8.2	1.2	14.8	1.5	6.0	1.4	7.5
July	2.8	7.2	1.2	13.6	1.5	4.0	2.0	4.9
August	2.1	8.4	1.0	6.8	1.6	5.6	1.9	4.9
September	2.4	9.1	-	-	-	-	2.3	7.4
October	-	-	-	-	-	-	1.3	11.0
MEAN	2.5	8.0	1.1	12.0	1.5	5.0	1.8	6.0

*7. Number of groups with calves*

Calves were present in groups watched from tour boats on 250 (52.9%) of all trips (23.2% from Kilrush, 89.8% from Carrigaholt (Draiocht), 56.7% from Carrigaholt (Anna M) and 7.7% from Doon) showing that breeding groups are subjected to dolphin-watching in the Shannon estuary.

*8. Individual dolphins watched from tour boats*

The individual dolphins watched from tour boats was recorded using photo-identification. During 2001 photo-ID of dolphins watched by tour boats was collected on 27 trips, 25 from Kilrush and 2 from by the Anna M.

**Table 7. Number of indentifiable dolphins recorded from tour boats, 1999-2001.**

Year	No. of trips	No of identified dolphins	Number (%) of dolphins recorded from tour boats in previous years		
			1999	2000	2001
1999	11	22	-	-	-
2000	25	35	13 (37%)	-	-
2001	27	33	10 (30%)	19 (58%)	-

## Recommendations

The following recommendations for the 2002 season should be considered:

- i) operators should try and limit their time per group per trip to 30 minutes,
- ii) photo-ID of dolphins observed from tour boats from Carrigaholt is required,
- iii) group definition needs to be standardized between ports,
- iv) the impact of dolphin-watching on dolphin behaviour should be concentrated in zone 3,
- v) the home range of those dolphins watched in both 2001 and 2000 should be determined,
- vi) the sensitivity of monitoring indices must be determined,
- vii) the long term funding of annual monitoring needs to be considered

## Summary

This is the second year in which trip data is required from dolphin-watching vessels as part of the management of commercial dolphin-watching in the Shannon estuary SAC. The system has been successful due to the support of the operators. Difficiencies have been identified and recommendations for improvement are presented.

During the 2000 season trip records were received from 473 dolphin-watching trips, which is thought to be a return rate of 100%. This is an increase of 17.4% on 2000.

Dúchas seek to limit the total time on dolphins to within the carrying capacity of the dolphins. As the carrying capacity of the dolphins is not known the growth of the industry has to be monitored. Following consultation with operators a total time on dolphins for the 2001 season was set at a maximum of 200 hours, however this was exceeded by 58% during 2001 to an estimated 316.9 hours. Under the Codes of Conduct, the maximum time on dolphins per group per trip was not to exceed 30 minutes but this was exceeded on 150 (31.7%) occasions. The total figure of 219 hours for the 2000 season is very close to the agreed limit. Calves were watched on 250 (53%) of all trips.

Nearly one-half (44%) of all trips locate dolphins in zone 3, an area between Kilcredaun Head and along the navigation buoys off Beal dunes. Dolphins inhabiting this area will probably be most affected by dolphin-watching and 57% of those dolphins watched in 2001 were also watched in 2000. Impacts on the impact of dolphin-watching on dolphin behaviour should be concentrated in this area.

There was no evidence of any significant change in dolphin behaviour from the monitoring indices recorded. Time to locate dolphins from Carrigaholt has increased slightly and although the mean number of groups per trip has increased from both main ports (Kilrush and Carrigaholt) the mean number of dolphins per trip has decreased.

The cost of annual monitoring is presented (Annex III). Assuming a monitoring rate of 10% from all ports, the cost is around €150 or €3 per trip. If 15,000 people went dolphin-watching during 2001, then the additional cost per visitor of monitoring would be €0.41 or 32p per person.

**Annex I: Vessels operating dolphin-watching trips in the Shannon estuary during 2001.**

<i>Company</i>	<i>Vessel</i>	<i>Number of trips</i>
Dolphinwatch Carrigaholt	Draoicht	210
Robert Stack	Lady Elish	13
Saoirse SeaSports	Anna M	33
Scattery Island Ferries	Deva	3
	Dolphin Discovery	214

**Annex II: Checklist of monitoring indices collected.**

Index	Biological aspect monitored ?	2000				2001			
		C	AM	K	D	C	AM	K	D
1. Trip length	Distribution, abundance,	v	v	v	-	v	v	v	v
2. Time to locate	Distribution, reaction to tour boat	v	v	v	v	v	v	v	v
3. Location	Distribution	v	v	v	v	v	v	v	v
4. Total time on dolphins	Behaviour, tolerance ?	v	v	v	v	v	v	v	v
5. No. dolphins	Abundance, behaviour	v	-	v	v	v	v	v	v
6. No. groups	Abundance, behaviour	v	-	v	v	v	v	v	v
7. % groups with calves	Behaviour, breeding	v	-	v	v	v	v	v	v
8. Dolphin ID	Distribution, behaviour	-	v	v	-	-	v	v	-

**Annex III: Estimated annual cost of monitoring.**

Assuming 10% of dolphin trips from all ports are to be monitored then the estimated annual cost of monitoring is:

10% of dolphin trips (using 2001 figure of 48 trips) @ €100 per trip:	€4800
Travel expenses, 625 miles @ €0.55 per mile+ 1 x ferry:	€400
Films and processing (c.1 film per trip):	€350
Data input, 3 days @ €120 per day	€360
Production of monitoring report, 2 days @ €120 per day	€240
<b>TOTAL</b>	<b>€ 6150</b>

As the total number of dolphin-watching trips increases, the annual monitoring costs will also increase if the 10% monitoring target is to be met.