Solitary Sociable Dolphins – an update from the UK.

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ABSTRACT

To date, at least seventy sociable and solitary cetaceans have been recorded worldwide and they seem to be part of a growing phenomenon of individual cetaceans that live in isolation from their societies and which actively seek contact with people. Such animals are very vulnerable to being injured or killed as a result of human actions. In a previous submission to the IWC Scientific Committee we provided an overview of the situation in UK waters (Simmonds *et al*., 2006). Subsequent to this, one of the solitary bottlenose dolphins, *Tursiops truncatus*, previously reported on has died and another appears increasingly at risk. This paper provides a short update about this perplexing situation.

KEY WORDS: SOLITARY, SOCIABLE, DOLPHIN BEHAVIOUR

INTRODUCTION

It is increasingly apparent that some persistent interactions between people and cetaceans can cause significant behavioural changes in the animals that can affect their survival prospects. Attention is beginning to be increasingly focused on the impacts of whale watching, including its potential to cause displacement. However, there are other interactions which may cause even more profound changes in animal behaviour. Provisioning of dolphins, for example, can lead to 'begging' behaviour where dolphins may actively seek out feeding opportunities (see, for example, Cunningham-Smith *et al*., 2006). Moreover, as detailed in Simmonds *et al*. (2006), 'solitary sociable' dolphins seem to be generated as a result of interactions with people under certain as yet not fully understood circumstances. Both begging and solitary sociable dolphins are greatly at risk of harm and many are killed as a result of their interactions with people (Simmonds *et al*., 2006, Cunningham-Smith *et al*., 2006 and Frohoff *et al*., 2006).

Solitary, sociable odontocetes are rarely, if ever, observed in the company of other dolphins. Typically, they inhabit small ranges and initiate social interaction with people and sometimes form close bonds with individuals over time, even soliciting and allowing close physical contact with swimmers and water craft. In the past, these animals have most usually been small delphinids, typically bottlenose dolphins (*Tursiops sp.*). However, Frohoff *et al*. (2006) note a recent increase in the occurrence of other solitary sociable odontocetes; specifically, orcas (*Orcinus orca*) and beluga whales (*Delphinapterus leucas*). To date, at least seventy solitary and sociable dolphins have been recorded worldwide.

Although concerns from a welfare perspective are reasonably clear (wounding is common, particularly from propeller strikes), the conservation implications of these kinds of behaviours are not. Whilst it is difficult to quantify this, 'solitary sociables' seem to be a growing worldwide phenomenon (Frohoff *et al*., 2006) and the loss of such animals particularly from relatively small and isolated populations may be significant. It may, therefore, be important to better understand the factors that cause solitary sociable dolphins to develop. To this end, we provide here further information on the solitary sociables in the UK, with a particular focus on 'Marra[1]', a bottlenose dolphin, *Tursiops truncatus*, that was living on the coast of Cumbria in Northwest England in 2006.

[1] 'Marra' is a word in northern English dialect that means 'Friend'.

METHODS

The information presented here is essentially anecdotal but either based on our own observations or those of colleagues who have been monitoring the dolphins concerned. The local coastguards and volunteers co-ordinated by British Divers Marine Life Rescue (BDMLR) closely monitored Marra for many months along the coast of the county of Cumbria during 2006. Currently a team of volunteers, again led by BDMLR, are doing the same for the solitary dolphin on the Kent coast. Good quality photographs and some film have been used to provide further information (including confirmation of the dolphin's identity) and veterinary surgeons have also examined these animals at various times.

MARRA

Marra's history up until April of 2006 was detailed in Simmonds *et al*. (2006). Further significant developments are noted in Table 1. In brief, Marra was first spotted early in 2006 in the harbour entrance of Maryport. Shortly after this the dolphin became trapped in the inner harbour in an old Victorian dock now used as a marina. This situation was carefully monitored by one of us (LS) for several weeks and, although the gate to the dock was regularly opened, the dolphin did not leave and was seemingly too frightened at this time to cross the bulky metal mechanism of the gate and enter the tidal channel outside. Concerns grew for the health of the animal in this polluted environment and, as the weather became colder and ice started to form on the dock, the dolphin's condition deteriorated as evidenced by concavities around her dorsal fin. Attempts to lure her from the dock or drive her out (including using a bubble curtain) failed and, following veterinary advice, it was decided to catch and remove her. This was successfully executed (Figure 1A shows the dolphin being moved from the dock) and she was released out to sea in the company of another wild bottlenose dolphin.

Whilst in the dock Marra's behaviour was carefully monitored. People tried to interact with her from the floating pontoons and also to feed her. She showed some interest in such interactions but her interest was usually brief. There is some evidence that she did accept fish that were offered. She interacted with some of the boats moving around the dock and was particularly interested in a kayak. At this point she was probably only a stage 1 or 2 solitary animal (as defined by Wilke *et al.,* 2005) with limited interest in interacting with people or boats.

After her apparently successful release, Marra was not reported for many weeks. She was then sighted again off the coastal town of Silloth in April and then back in Maryport in May. She was recognised as being the same dolphin based on a series of persistent marks on and around her dorsal fin (Figure 1B). On May 16th she was found stranded at Beckfoot (the neighbouring town to Silloth). The reasons for her stranding are unknown but may relate to her behaviour (*i.e.* that she was by now actively seeking human interactions and spending more time in shallow water). She would undoubtedly have perished at this point if she had not been carefully 'refloated' by a group of 'marine mammal medics' led by BDMLR.

In the months that followed, Marra became a regular visitor to the harbours and surrounding shores of the Cumbrian towns named above. Attempts to persuade the public not to socialise with her (including the use of posters and writing to local schools) failed and she became a popular local 'amenity' (Figure 1C). There were a number of incidents where her behaviour or the behaviour of her human admirers caused concern, including at least one incident where she seemed determined not to allow a swimmer to leave the water. Towards the end of the summer, she exhibited a number of deep lateral wounds (Figure 1D) which appeared to be propeller injuries and also a circumscribing wound around her tail, which was probably life-threatening and appeared to have been caused by rope entanglement (Figure 1E). These wounds were all seen to slowly heal.

During this period she was carefully monitored by the local coastguard and volunteers from BDMLR. Her behaviour through the summer months was in accord with that of a stage 4 sociable dolphin (as defined by Wilke *et al*., 2005). This change in her behaviour from that seen in the dock prior to her release is difficult to explain but it is possible that between her release from the dock and arrival at Silloth she may have been actively 'tamed' by interactions with one or more people who chose to swim with her. There is some

anecdotal evidence that this occurred. Alternatively, this progression from one stage to another may be just the normal progress of a solitary dolphin in these circumstances. She continued to be monitored through the autumn and early winter, although fewer sightings were reported as the weather deteriorated. On the twelfth of December 2006, her body was found on the shore at Skinburness (a little north of Silloth).

The local council initiated a swift disposal and unfortunately her body was dismembered before it could be retrieved for post-mortem. Nonetheless, her body (less her jaw) was examined the next day by experienced pathologists at the Institute of Zoology in London. Initially the cause of death was thought to be stranding, but tests later showed that septicaemia caused by a bacterial infection (*Erysipelothrix rhusiopathiae*) was the ultimate cause (Jepson, pers. comm.). Otherwise her body was reported as being in good condition, with a good blubber layer. *E. rhusiopathiae* is zoonotic and usually enters its host through scratches or puncture wounds on the surface of the skin and is likely to be found in faecally-contaminated environments (PHI, 2007). Thus Marra's habit of living close inshore in polluted waters combined with the wounds that she developed are likely to have facilitated this infection and her death.

A public memorial event was held for Marra in January 2007 in Maryport bringing together the many people who had been involved in various ways with this animal and facilitating an open discussion about what happened to her and the efforts made to manage the situation.

Bottlenose dolphins continue to be reported close inshore in and around Maryport. One at least is reported to be following fishing boats.

OTHER SOLITARY DOLPHINS IN THE UK

2006 also saw another solitary bottlenose dolphin die in the UK waters. The animal concerned was known from harbours in Portmouth, on the English south coast, and on the neighboring Isle of Wight (Nurse and Ivitsky-Molleson, pers. comm.). The animal was not being closely monitored but had been reported in the area for a few months and was known to have started to exhibit solitary sociable tendencies. It was killed in February by a tug boat propeller in the busy entrance to Portsmouth Harbour.

At the time of writing (April 2007) there are two other solitary sociable dolphins in UK waters. One is in the Thames Estuary. Little is currently known about this animal, except that for some months it maintained a vigil around a buoy some two hundred metres off Canvey Island in Essex close to very busy shipping lanes and a wet bike launch zone. It showed only very limited interest in passing vessels. More recently it has moved further offshore.

The other animal, known as 'Dave' (although this animal's gender is not definitely known), is resident on the Kent coast. Like other solitary dolphins his territory is small and consists of two focal areas a few miles apart. Both focal areas are only a few hundred metres in extent and just metres offshore. This is a popular tourist area and the dolphin 'patrols' these areas and interacts to some extent with swimmers (Figure 1E) and boats. Although the dolphin can easily be seen from the shore (indeed many local people regularly go to view him) at least two local entrepreneurs have offered regular boat trips out to visit him.

Dave seems to still be exhibiting some reticence in terms of interacting with people and would not seem to yet fit the definition of a stage 4 dolphin. His interactions with swimmers seem to be focused on some who regularly swim in his 'patch'. This animal's closeness to a busy shore and the attention that he generates both locally and nationally seem to make him very vulnerable to further habituation and harm.

As part of an outreach exercise to the local community a public meeting was organised by the UK's Marine Animal Rescue Coalition in March to discuss the situation of this animal and seek help from the local coastguard, council and chamber of commerce (all of whom attended) and other interested local parties. The main advice being offered is a recommendation not to swim with or otherwise interact with him but instead to view him from land. Follow-up meetings with the local authorities are now in progress. BDMLR and WDCS volunteers are maintaining regular patrols along the areas of shore where Dave resides and this activity will be stepped up as the good weather and the holiday season progress.

FUTURE PROSPECTS, CONSERVATION IMPLICATIONS AND RESEARCH

Marra's behaviour appeared to follow the stages identified by Wilke *et al*. (2005). Like many other solitary sociable dolphins her death seems likely to be a result of her habituated condition. From the point that Marra became a stage 4 dolphin, the repeated boat and propeller strikes and other wounds that she suffered meant that her life was at risk. Dave is not yet as fully habituated but appears to be progressing in the same direction.

Both Dave and the dolphin in the Thames Estuary are a long way (in fact several hundred miles) from the UK's remaining resident populations of bottlenose dolphins, which are in the Moray Firth and Cardigan Bay. A few bottlenose dolphins can also be found along the coasts of Dorset, Devon, and Cornwall and there is also a bottlenose dolphin population on the Brittany coast (and it should perhaps be noted here that France too has its issues with solitary sociable animals, including 'Jean Floc'h', who last year took to stopping small propeller engines and reportedly overturning small vessels).

How any of the UK solitaries came to be isolated can only be speculated upon: for example, it may be that there is a dispersal phase for some juvenile bottlenose dolphins (perhaps at puberty) when they move away from the parental group (noting that all the dolphins discussed here seemed to be young animals when first encountered). When bottlenose dolphins were more common around the UK such animals would have been more likely to find and join another group. Alternatively, abandonment by or loss of a family group, accident, sickness or aggression within a family group may be the cause (Lockyer, 2005). We also wonder if the apparent increase in solitary sociables is not to some significant extent being created by increasing human activities at sea and on the shoreline. If this speculation is correct then as marine activities increase, such animals may become more common too.

In terms of these animals being lost from the remaining small bottlenose dolphin populations and the longer term implications of this, an important question is: what is the prospect of these solitary animals rejoining a bottlenose group? Lockyer (2005) suggests that 'contrary to popular belief, many so-called solitary dolphins are not abnormal, but are undergoing a life-history phase which frequently passes. Many such animals have subsequently integrated back into schools, or if not, have at least provided concrete evidence of regular social contact with conspecifics (e.g. actual observation or acquisition of tooth rakes)'. However, the sample size for such conclusions remains small. When Marra was released at sea in the presence of another dolphin it was hoped that she would then reintegrate. As we now know, this did not happen. 'Georges' the stage 4 solitary sociable dolphin that visited the UK south coast in 2002 (see Simmonds *et al*., 2006), remains mainly solitary but is known to socialise occasionally with Jean Floc'h but this should probably not be seen as the same thing as reintegration into a dolphin group. The poor survivorship of solitary sociables is likely to some extent to preclude re-integration, as is the reduced density of bottlenose dolphins around the UK.

The fact that Marra, and other solitary animals, seem to occasionally associate with other dolphins, as well as people, may mean that they could facilitate the transfer of zoonotic disease, a risk to those swimming with them as well as the dolphin populations.

The workshop on solitary sociables held in 2005 in San Diego recognised the need for further systematic research and made a series of related recommendations including the development of research protocols designed to maximize the collection of data (Frohoff *et al*., 2006). The workshop also stressed that baseline research should be initiated at the first possible opportunity when an odontocete is believed to be displaying human oriented social behavior. We support these calls for improved research (and are in the process of developing protocols for systematic monitoring of such animals). More generally there is a need for more attention to be paid to such animals and for those who are involved in their monitoring and management to exchange information and insights.

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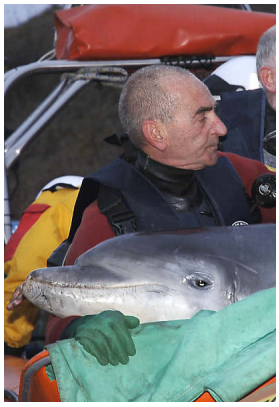
Table 1. Observations of 'Marra', the Cumbrian dolphin after release from Maryport Dock.

April	
	Marra spotted near Silloth and identified using photographs.
May	
	Marra reported following fishing and other boats and possibly feeding from nets.
	Marra observed with another dolphin in the outer harbour at Maryport and regularly reported between Maryport and Silloth.
	Sea scouts seen playing in the water with Marra.
15th May	Marra strands on high water mark at Beckfoot (near Silloth) and is rescued. A veterinary inspection includes taking blood samples and results are within the normal reference range.
June	
16/6	Marra re-enters Maryport dock (marina) and leaves this time without problems.
26/6	New injuries observed and the dolphin is reported swimming close to boat propellers.
30/6	Marra returns to Maryport dock and lured out with boats. Whilst in the dock Marra chases fishing lines. Towards the end of this month, Marra is reported trapped in Workington Dock for 2 days.
July	
	In July swimming with and holding onto Marra's dorsal fin begins in earnest. Four bottlenose dolphins are seen associating in Silloth harbour area. Ther are reports of Marra butting swimmers, including a 10 year old girl.
6/7	Silloth - four dolphins are reported inshore but only Marra interacts with at least 6 people.
	18 children use air beds to search for Marra.
9/7	Boat strike reported when yacht suddenly changes direction in Maryport Dock and strikes Marra.
10/7	Children are reported 'dive bombing' Marra from pier in Maryport and holding dorsal fin.
	Marra takes a girl further out from a group of swimmers. She is rescued. It is reported that Marra is rounding people up and then jumping out of the water and fluke slapping / swimming at people.
	A 'big change' in behaviour is reported by local monitoring group – i..e Marra has become far more boisterous.
	Marra is reported swimming in very shallow water with 20 + people plus boats. The dolphin is being petted and offered food. Police attend following a call for their help and eventually two arrests are made for abusing the police.
19/7	A man is reported to have been butted in face by Marra after manhandling her.
	Three boats moored together pet the dolphin; Marra gets stuck in moorings and thrashes around before freeing herself.
31/7	Marra is trapped in Maryport marina for the day; she is eventually lured out with the help of speed boat.
August	
5/8	A serious tail injury is seen in photos. She also has more prominent propeller wounds. She is seen rubbing buoys and hitting then with tail; chasing a swan and playing with beach balls.
	There is a report that Marra was struck by a boat and then retaliated by ramming it. Children dive bombing /jet skiers harassing etc.
September	Trapped in marina for one day and night; reported to be lethargic and with foul-smelling breath. Local vet called to inspect her and wounds seem to be healing well.
19/9	New cut above right eye.
24/9	Dolphin trapped in Workington harbour for a few days.
October - December	Sighting are much more sporadic due to weather and lower numbers of people on the water – but there are still occasional reports. 12/12 Marra found stranded on beach dead.



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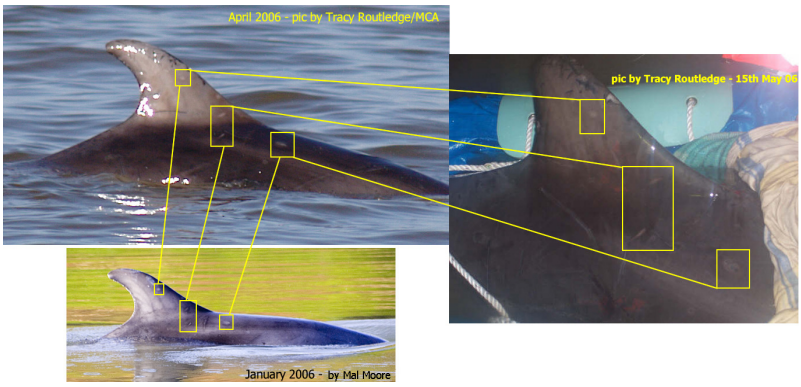

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Figure 1. Solitary sociable dolphins in the UK:
A-E Marra in Cumbria. F Dave in Kent.