Report on the Physical & Behavioural Status of Morgan, the Wild-Born Orca held in Captivity, at *Loro Parque*, Tenerife, Spain

Dr Ingrid N. Visser © (2012), for the Free Morgan Foundation (www.freemorgan.org)

* version 1.2 (typos fixed: Tekoa & Kiessling misspelt and fixed. Inserted missing Figure numbers)

Morgan the female orca, held at *Loro Parque*, begging for food. Scars inflicted by *Loro Parque* orca, are visible on her eye patch.
Photo © Dr Ingrid N. Visser

Executive Summary

Morgan was to be held at *Loro Parque* as an interim measure whilst the legality of her continued captivity was debated. The main consideration stated as to why she was sent to this facility, despite data to show otherwise, was so she could socialise with other orca.

Since her transfer she has been brutally and continually attacked and is subjected to excessive sexual pressure from a male orca who she is often locked into the same tank with.

The author observed Morgan for 77 hours and 16 minutes, over eight days (spread over a 24 day period). During that time-fame, an unprecedented 91 aggression events were documented, all involving Morgan.

A similar study, looking at aggression in captive orca (observing them for 1,872 hours, i.e., 78 days) recorded only eight aggressive episodes.

Morgan, was attacked, on average, more than once an hour.
The other study recorded an aggressive episode only once every 234 hours.

Put another way, Morgan is over than 100 times more like likely to be attacked at *Loro Parque* than the orca in the other study.

Since her arrival at *Loro Parque*, Morgan has been inflicted with more than 320 puncture and bite marks (all documented by photographs). This does not include the damage she has self-inflicted from abnormal and repetitive behaviours such as banging her head on the concrete tanks.

Additionally, Morgan is wearing her teeth down from chewing on the concrete. Teeth wear in captive orca often leads to infections. These abnormal behaviours are a direct result of boredom from being held in a featureless environment in which she is provided little if any stimulation.

There is a clear lack of empathy for this animal from the trainers, who ignore her calls for attention and her cries for help and disregard aggressive attacks on her by the other animals, even when they are within meters of these events when they occur.

Executive Recommendation

Morgan should be removed from *Loro Parque* immediately and placed into a sea-pen. If her physical and mental health are to be preserved there is no other option.

Context of this Report.

"Morgan" is a young female orca who was captured from the wild in June 2010 and has since been in two entertainment parks which keep captive cetaceans for public, circus-style, shows.

Despite lengthy debates in which it was, *inter alia*, suggested that Morgan be moved to a semi-natural or sea-pen facility during the deliberations and legal battles about her status and repatriation to the wild, the captive industry has refused to consider such options.

In the face of extreme controversy, the first park (*Dolfinarium Harderwijk*) in the Netherlands, transported Morgan (with the help of *SeaWorld* USA entertainment parks[1]), to the second entertainment park (*Loro Parque*), in Spain, on the 29th of November 2011

Loro Parque has an extremely dysfunctional group of orca who were all captive-born. They regularly exhibit behaviour outside the social and physical norms for both captive and wild-born orca. This includes attacks on trainers;

- 2007, a male orca (Tekoa, 7 years old at the time) attacked a trainer in the water and attempted to drown her;
- 2009, a female orca (Skyla, 5 years old at the time) attacked a trainer in the water pinning him to the side of the tank;
- 2009, a male orca (Keto, at 14 years old at the time) attacked a trainer in the water and killed him

All of these orca are now considered so dangerous that the trainers do not enter the water with them.

One of the females (Kohana), who had been bred when she was an extremely young animal (only 7 years old), has attacked and rejected both of her calves. Consequently, these calves have had to be hand reared, creating further behavioural and social issues.

Furthermore, of more importance with respect to Morgan, the orca at *Loro Parque* are known for their attacks and bullying *within* the group. Of particular note is a sub-adult male orca known as Tekoa. Visser (2011) reported to the Court (7 November 2011) that Tekoa is the most attacked and bitten orca in the world-wide captive industry.

Since Morgan's arrival at *Loro Parque*, she has not integrated with the other orca held there. Although *Loro Parque* uses the term 'fully integrated'[1] to describe Morgan's interactions with those orca, unfortunately there is no harmonious interactions and no individuals relating as equals, rather, Morgan has been attacked, bitten, rammed and bullied by the other orca, on a daily basis.

This report is compiled from 77 hours and 16 minutes of observations obtained during public viewing times and public viewing areas. Although constrained by this, the report leaves no doubt as to the severity of the events reported here. Furthermore, other evidence corroborates these findings and reveals that Morgan should be removed from *Loro Parque* immediately.

[1] Almunia (2012) Unpublished report on the introduction of a rescued *Orcinus orca* individual into the Orca Ocean group.

Observation Methods

The author observed Morgan for 77 hours & 16 minutes (during 8 days, over a 24 day period). Detailed logs were kept of Morgan's behaviour and her daily time budget during observations. Interactions and altercations between Morgan and the other orca were also noted in these logs. All injuries reported herein were documented by photographs and some behavioural issues (e. g, stereotypic behaviour, attacks) documented on video. Details are given in Appendix One.

Morgan

On 12 July 2012, Morgan's measurements were; Length: 437 cm (i.e., nearly 1 m longer than at her capture 2 years earlier) and; Weight: 1364 kg / 3007 lb (i.e., 943 kg / 2079 lb more than her capture) (pers. com. Javier Almunia[2]).

Of note is that Morgan is longer than the tiny Medical Tank is deep (4.2 (deep) x 7.1 x 12.4 m) and the tank is less than 2x her length, at its widest.

Results

Interactions between Morgan and the other Orca at *Loro Parque*.

Aggressive behaviour was seen between Morgan and all five orca held at *Loro Parque*. Although only photographs are presented herein, video documentation of attacks were also recorded by the author. Additionally, video taken by members of the public has also been assessed. One such video has been posted on 'YouTube', and it is apparent from this footage that Morgan was attacked and bitten, with fresh scars from the assault clearly visible. During this particular video (filmed from a 'behind the scenes' underwater viewing area, which *Loro Parque* has now banned public access too), Morgan could be heard calling out loudly (loud enough to be heard through the thick glass panel). She presses her face against the window where the viewers are watching. This video can be viewed at: http://www.youtube.com/watch?v=Z5MyNC2s-Mw

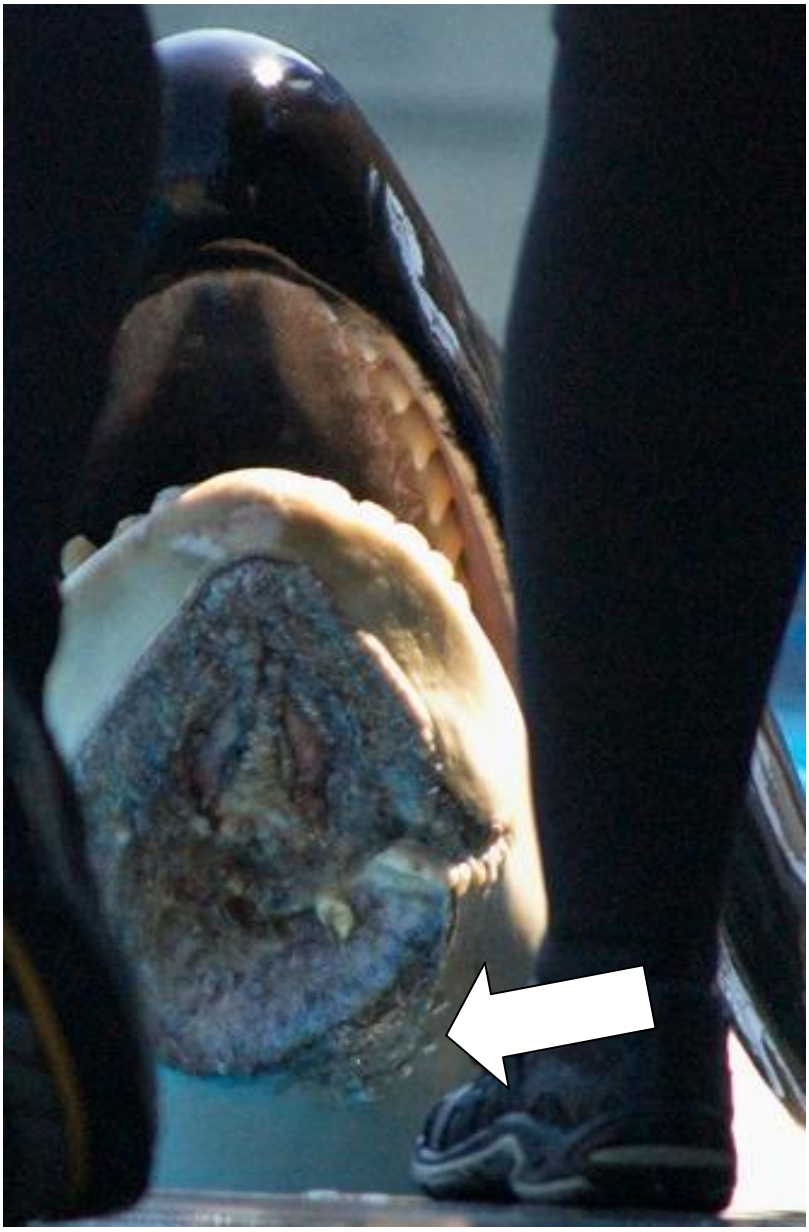
Rammings in cetaceans (whales, dolphins and porpoises) such as those illustrated below (Figures 4 – 10) are violent interactions and can result in severe bruising, rib fractures with associated haemorrhaging and bruising, ruptured lungs resulting from penetration by fractured ribs, severed arteries and spinal dislocation (Patterson et al., 1998, Jett and Ventre, 2011). Broken ribs have been implicated in the death of cetaceans (Clark et al., 2006) and bruising has been thought to aggravate death through advancing toxic invasion of bacteria in captive cetaceans (Buck et al., 1987).

Even teeth marks from bites (called rake marks) inflicted by conspecifics (same species) can be life threatening. Although rake marks may appear to some observers to be benign (or just superficial injuries), they have been implicated in the deaths of captive dolphins (Waples and Gales, 2002) and shown to allow bacteria to enter into the blood stream of captive bottlenose dolphins and cause death (Buck et al., 1987, Zappulli et al., 2005). Orca are susceptible to the

[2] Head of Loro Parque Foundation , 12 July 2012 (weight measurement taken 1 July 2012)

same bacteria as bottlenose dolphins and have died from similar infections (Griffin and Goldsberry, 1968, Klontz, 1970, Greenwood and Taylor, 1978). Morgan has more than 150 rakes on her left side, more than 120 rakes on her right side and more than 50 rake marks on her ventral surface. These are all wounds which have been inflicted since her arrival at *Loro Parque*. They have been documented in photographs (e.g., Figures 12 - 18), which were all taken from the public viewing area (i.e., no close inspection of Morgan was permitted).

Stress (of which aggression is a contributing factor) within a captive community of cetaceans is known to lead to illness and death (Waples and Gales, 2002). It has also been known for more than 45 years that captive animals, confined to a limited environment and with controlled social grouping (e.g., trainers deciding which animals are locked together), can have escalated social pressures (Hedinger, 1964). As a result social encounters can become more intensive (i.e., aggression increases) because individuals have limited means of escape (Hedinger, 1964).



Incompatible or inappropriate group structure has led to aberrant and aggressive behaviours which culminate in injury, illness and mortality in dolphins (McBride and Kritzler, 1951, Caldwell and Caldwell, 1977, Wood, 1977).

(Figure 1). Nakai the captive-born orca was attacked by two other orca and brutally injured. Four puncture marks can be seen at the lower right edge of the wound (arrow) by the trainers shoe. Note how the spacing of these puncture marks is similar to that of Nakai's own teeth, confirming that these originated from the attacking orca's teeth (photo taken at SeaWorld San Diego 30 Sept 2012)

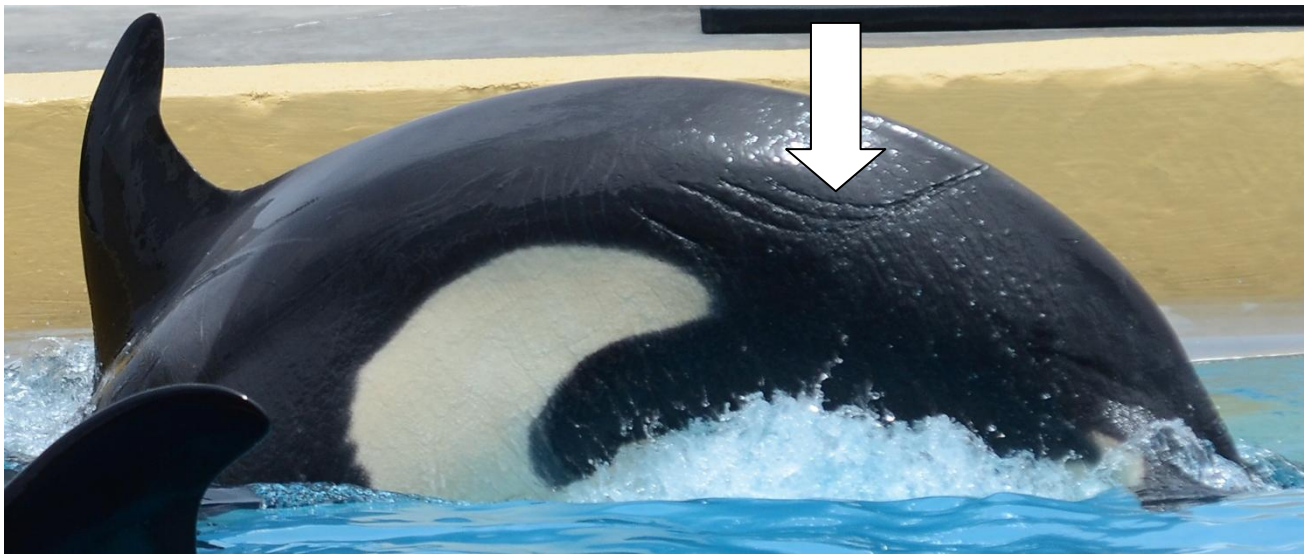


Figure 2. Fresh bite marks (called rake marks, indicated by arrow) on Adán at *Loro Parque*. This photograph was taken shortly after an altercation was observed between Morgan and Adán (which was instigated by Morgan). Both orca were locked in the tiny Medical Tank together (Morgan's dorsal fin visible foreground, left). (photo date 20 June 2012)

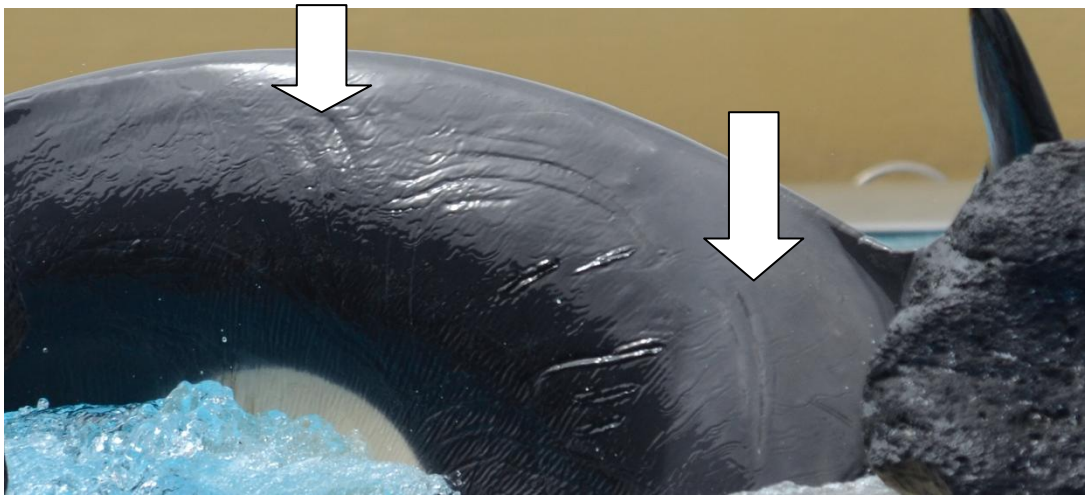


Figure 3. Fresh rake marks, on Adán's right side. Note also that there are less pronounced wounds and scars (arrows) from earlier bite marks. (photo date 20 June 2012).

Ramming, Body Slams, Rake Marks.

Morgan was observed to be forcefully rammed by either Kohana or Skyla (10 and 8 years old, respectively) (Figures 4, 5 and 8), or both operating together (Figures 6 and 7), on multiple occasions. They were photographed ramming her at least six times. Further evidence of bullying was photographed (such as body-slams Figure 9 and pinning against tank walls Figure 10).

The pair of female orca (Kohana and Skyla) are the main instigators of attacks on Morgan. It is abundantly clear that they should be kept separated from her at all times.

Figure 4. Morgan, as she is rammed and pushed sideways by the female orca, Skyla (right). Note the water being displaced behind Morgan's dorsal fin (arrow), as she is forced backwards. (photo; 27 June 2012).

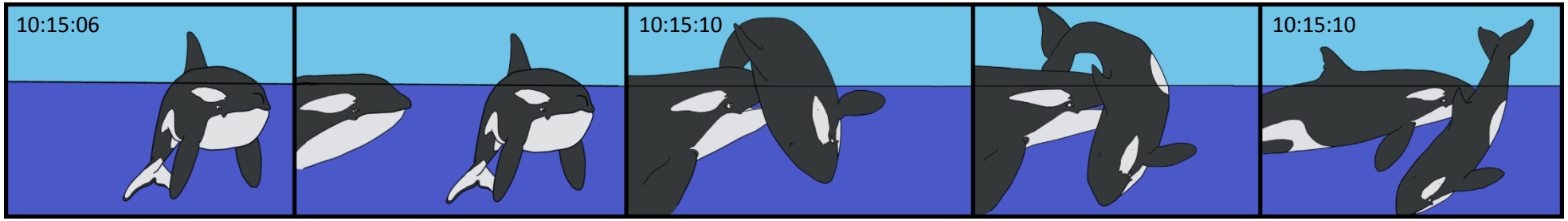
Figure 5. Morgan (partially obscured on right) as she is rammed and pushed sideways by the female orca, Skyla. Note the amount of water being displaced to Morgan's left (at right of frame), as she is forced sideways. Also note the amount of water Skyla is displacing (visible washing up over her body) as she rushes forward and rams Morgan. (photo; 27 June 2012)

Figure 6. Morgan (head out of water, on right) as she is rammed and pushed backwards by the two female orca, Skyla and Kohana. Note the amount of water being displaced as Morgan is forced backwards. See Figure 7 for full frame photograph of this cropped image.

Figure 7. The full-frame photograph of Figure 6. Note the trainers standing to the right. During all the attacks recorded by the author the trainers were present, yet ignored them.

Figure 8. Skyla (female orca, left, obscured by gate) rams Morgan (right) and partially lifts her out of the water. NOTE: Morgan's lower caudal peduncle is concave from force of ramming (at impact site). Water is displaced at impact site & on Morgan's left (right of frame). Morgan weighs 1364 kg, requiring her be to hit with a substantial force, in order for her to be lifted out of the water this high. See following page for sequence of photos. *This photograph is **(C)** in the sequence, below (23 June 2012, at 10:15:10 hrs).*

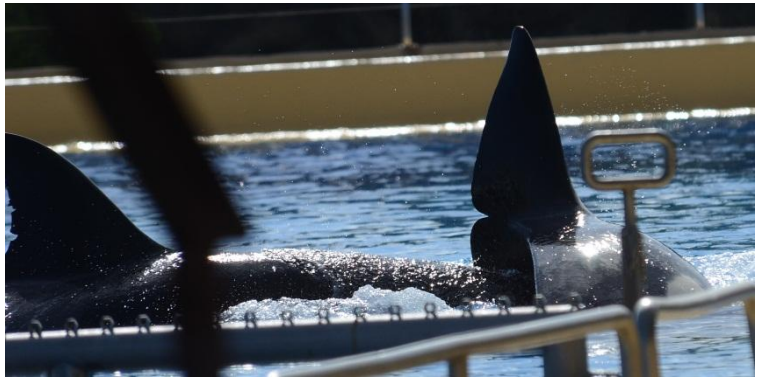
Figure 8 (cont'd). Sequence of events of ramming. Time frame between the first and last photograph is **four** seconds (given in hh:mm:ss).



(A) Morgan is at the surface (10:15:06)

(B) Skyla approaches underwater (not photographed)

(C) Skyla rams Morgan (see enlargement above) (10:15:10)



(D) Morgan lifts tail (10:15:10)

(E) Morgan lifts tail. Skyla's distinctive fin visible (10:15:10)

Figure 9. Morgan (partially obscured on left) as she is body slammed and pushed sideways by the female orca, Skyla, during a training session. Note the edge of the tank has a wide 'slide out' edge at water level and Morgan's tail hit the ledge as she attempted to recover from this bullying (photo; 27 June 2012).

Figure 10. Morgan (obscured underwater in foreground) as she is chased and pinned against the tank wall by the female orca, Kohana. Note trail of water off the dorsal fin of Kohana and the white water behind Morgan (alongside Kohana, in foreground), illustrating that this event occurred at speed. Also note the white water created near Morgan's head (obscured, right foreground) as she releases a large cloud of bubbles. This photograph was taken at 10:49:23 hrs, i.e., 04:37 min/sec before Figure 11, when Morgan was photographed as she is bitten (photo; 29 June 2012)

Figure 11. During a training session, Morgan (partially obscured behind rail), rises out of the water in an attempt to avoid a bite from one of the two orca in the tank with her (Skyla and Kohana). This photo is one of a sequence of images, showing the open mouth and teeth progressed along Morgan's body as she rose up and then slid down, to try to avoid the conflict.

Fresh rake marks were visible and photographed after this event Figures 12 and 13.

This photograph was taken at 10:54:08 hrs, i.e., only 04 min, 37 sec after Morgan was photographed, as she was pinned to the tank wall by Kohana (Figure 10).

(29 June 2012)

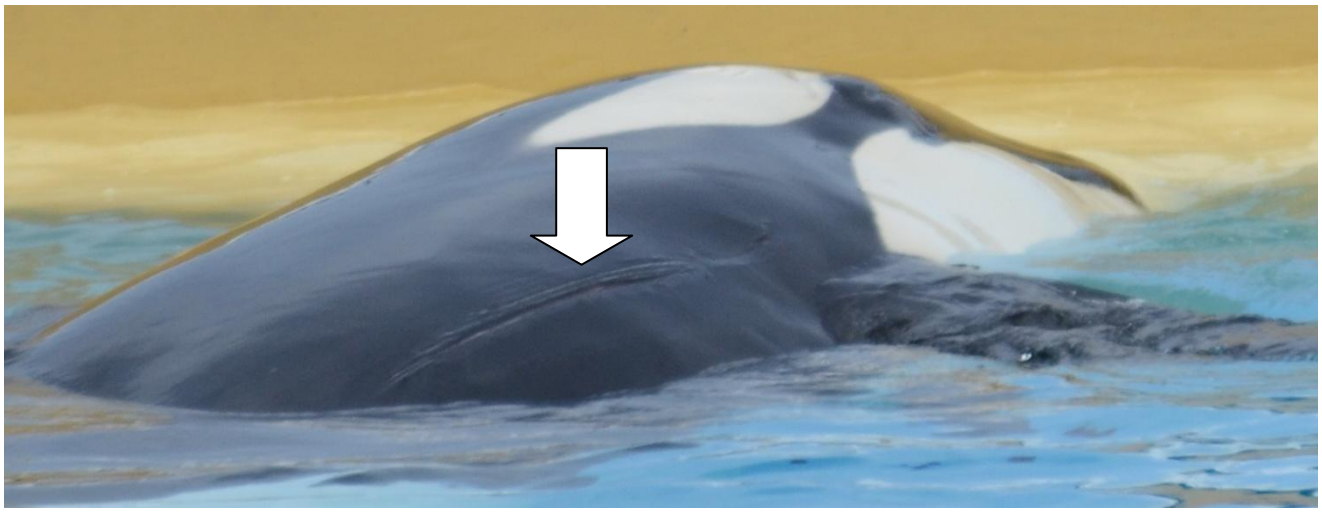


Figure 12. Fresh rake marks (arrow) on Morgan's right side, just above her pectoral fin insert. This photograph was taken at 14:00:50 hrs on 29 June 2012 (i.e., 03 hours, 06 mins, 42 secs after she was photographed during the attack in Figure 11).

Figure 13. The same fresh rake marks (arrow) as in Figure 12, shown from a different angle. Morgan's is lying with her right side exposed above the water. This photograph was taken at 16:33:45 hrs on 29 June 2012 (i.e., 05 hrs, 39 mins, 37 sec, after she was photographed during the attack in Figure 11).

Cetaceans are known to have sensitive skin that is easily damaged. It is also effected by sun, including sunburn (Addink and Smeenk, 2001, Jett and Ventre, 2011, Martinez-Levasseur et al., 2010). Although Almunia Portolés (2012) states that "*The enclosure has a canopy that gives shade to most of the pools' surface, offering the animals the possibility of being in the sun or the shade.*", he fails to note that animals in the medical tank, especially when raised as in his photo on page 3, are offered no shade. The author observed Morgan locked in this tank for more than 30% of the time, either by herself, or with Adán.

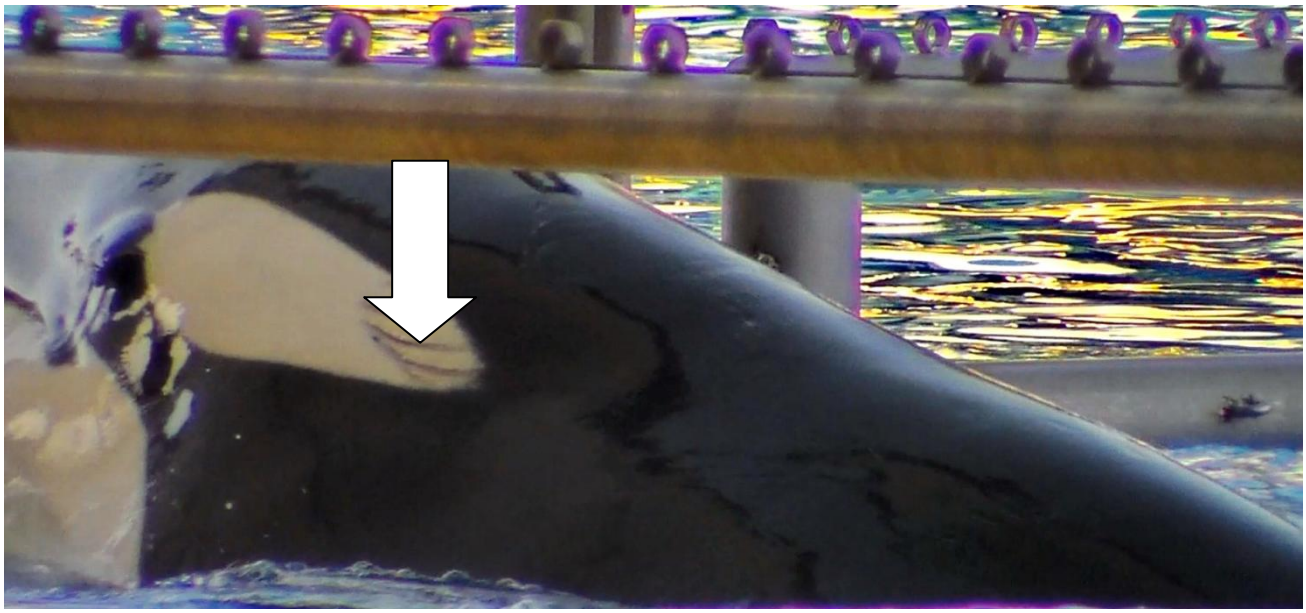


Figure 14. Fresh rake marks (arrow) on Morgan's left eye patch. This photograph was taken 24 February 2012, by a concerned tourist who submitted the image (taken from a video) to the Free Morgan Foundation (www.freemorgan.org).

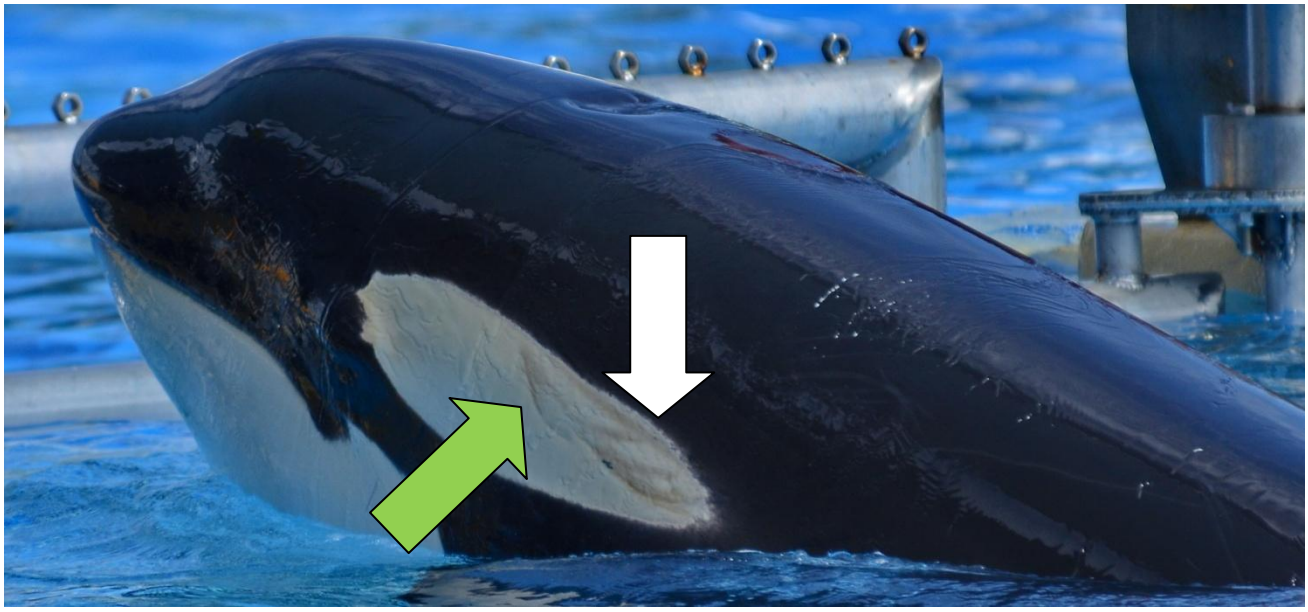
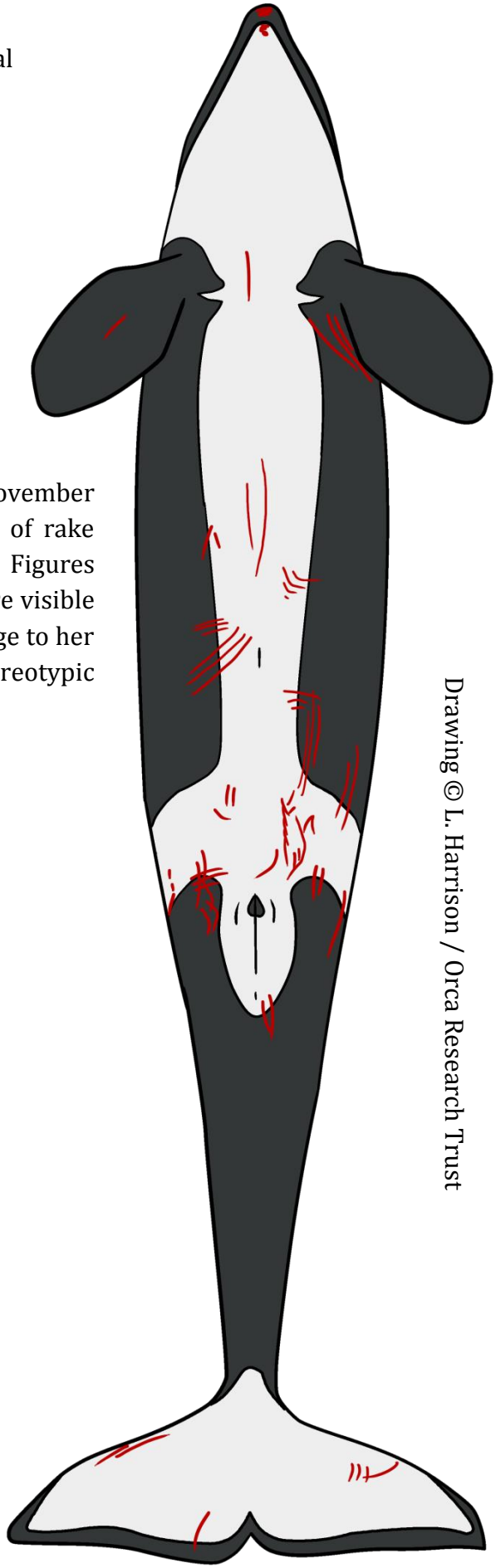


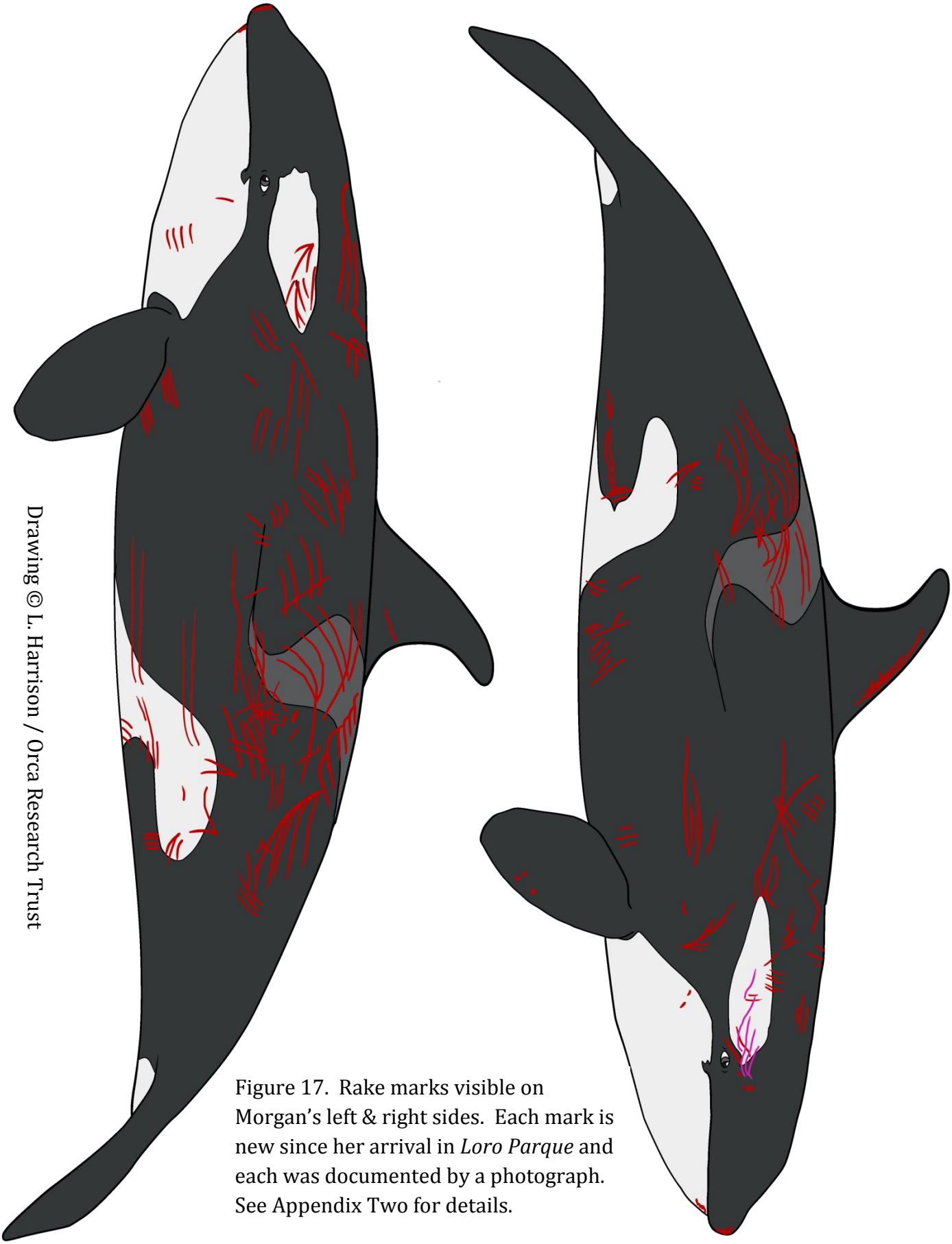
Figure 15. The rake marks on Morgan's left eye patch, which were originally photographed on 24 February 2012 Figure 14 have faded considerably (white arrow). This photograph, taken on the 23 June 2012 is 112 days (four months) after these marks were first photographed, illustrating that rake marks, although visible for extended periods, may fade to some degree. A second set of faded rake marks are also visible (green arrow). This also strongly suggests that Morgan has more rake marks than are visible in these photographs obtained by the author, either due to progressive healing (fading) or due to resolution of the images, as these were taken from at least 36 m away from Morgan.

Figure 16. Rake marks visible on Morgan's ventral surfaces. See Appendix Two for details.



Drawing © L. Harrison / Orca Research Trust

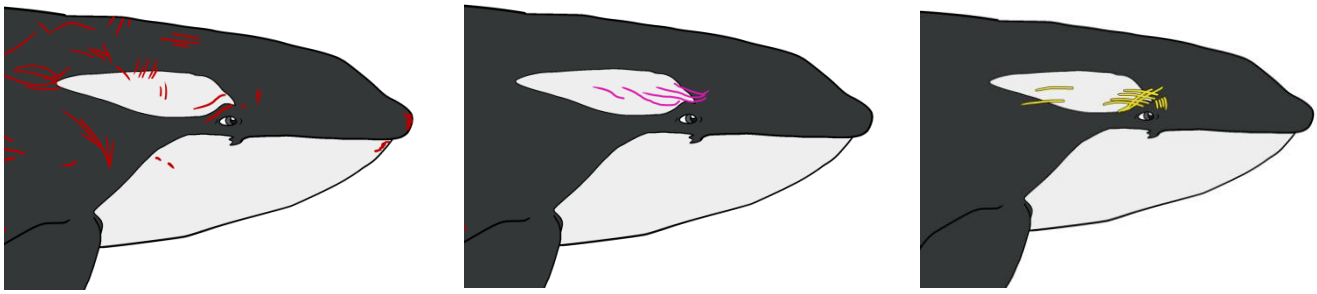
Since her arrival at Loro Parque on the 29th of November 2011, Morgan has acquired an excessive number of rake marks. Some are visible in photographs (e.g., see Figures 12-15). More than 50 rakes and puncture marks are visible on her ventral surface. This does not include damage to her rostrum through self-mutilation due to stereotypic behaviours (e.g., see Figure 23 and Appendix Two)



Drawing © L. Harrison / Orca Research Trust

Figure 17. Rake marks visible on Morgan's left & right sides. Each mark is new since her arrival in *Loro Parque* and each was documented by a photograph. See Appendix Two for details.

The accumulation of rake marks on Morgan continues (see Figures 14 & 15 and Figure 18below.). A professional orca trainer, when viewing the photographs of Morgan's rakes, stated: "*Morgan looks like she's taking a bit of a beating. It's not uncommon for that to happen when you place new animals together but it does look like she being targeted more then she should. ..... in one of the photos it looks like she came close to losing her left eye*" pers comm. to Visser 22 June 2012 (trainer has requested anonymity for fear of backlash from the captivity industry).



June (10 photographs) **July** (1 photograph) **October** (2photographs)

Figure 18. Continued accumulation of rake marks on Morgan. July and October evidence, base on one and two photographs respectively. (photos supplied by, Anon, C Robles & WDC (12 October, 2012)

Stress is also indicated by a loss of appetite, inactivity and social isolation (Waples and Gales, 2002). Almunia Portolés (2012) has an untitled graph in his report (page 10), which is presumably Morgan's weight (as Weight in Kg is on the Y axis and dates are along the X axis). It is apparent from the graph that Morgan's weight has not increased since mid September, which is of great concern. Yet Almunia Portolés (2012) does nothing to alert the reader of the sudden halt of weight increase, nor inform the reader of what the cause may be. In a healthy orca of Morgan's age, weight increase should continue for many years, not suddenly halt.

Waples and Gales (2002) correlate the death of three dolphins with their social relationships (including aggression). They also cite references where consistent exposure to a dominant individual can result in death and that problems are most likely to occur "... *where social structure is unstable and conflicts occur regularly*".

The definition of how often is 'regular' then arises. Given that Grahman and Noonan (2010) video taped three captive orca for 1,872 hours (24 hour surveillance, with full access to all tank areas) and classified aggression as including high-speed chases as well as open mouth approaches, their data set was not only extensive, but their criteria classification was broad. Despite such a large data set and a very loose definition of aggression, during all of their observation time (78 days) they only recorded a total of eight aggressive episodes.

This contrasts sharply with the authors findings from *Loro Parque*, where 11 violent aggression events were photographed or video taped in 77 hours and 16 minutes of observations. This was despite the extremely limited access to the tank areas (public viewing only and access only

during park hours). Therefore, Grahman and Noonan (2010) observed an aggressive episode only once every 234 hours (compared to the data for Morgan, who was attacked at least once every 11 hours at *Loro Parque*).

However, it should also be noted that these 11 aggression events were not the only to be recorded. A total of 91 aggression events were logged in the behavioural data. This equates to more than one aggressive event per hour. Put another way, Morgan is more than 100 times more likely to be attacked at *Loro Parque* than the orca in Grahman and Noonan's (2010) study.

It should also be noted that Almunia Portolés (2012) writes in his report (page 10) that since March, Morgan has been left during "*... the night time (12 hours without any direct supervision of the keepers)*". His untitled pie chart shows how Morgan is with two or more orca during for 25% of the nights of October, despite Almunia Portolés (2012) admitting that "*when three or more individuals were involved.... the social displacements and adjustments appeared*.". 'Social displacements and adjustments' is clearly a euphemism for aggressive attacks.

Loro Parque is clearly aware that these events have been scrutinized and feel threatened by that, as the author was requested to stop taking photographs and logging data on a number of occasions (Visser, unpublished data). And although some parts of some tanks were visible through the gates, during the data collection process in June (Figure 19), *Loro Parque* has now erected barricades to prevent any data from being collected (Figure 19) outside of commercial show times.

Figure 19. LEFT The 'gates' in June, from which more than 80% of the observations of Morgan were made from. The potted palm tree on the left edge of the frame in this photo marks the position the author typically stood. RIGHT. The same gates, in July, barricaded to prevent viewing. For orientation of the slightly different camera angles, note the rubbish bin at the right side of both images.

The aggression between the orca at *Loro Parque* is so elevated that the 'standard' barriers erected to keep the orca separated into different tanks have been reinforced with nuts welded onto their upper edges. These have also had to be installed on the gates between the tanks which do not have a walkway (Figure 20). Additionally, chains have had to be installed over the concrete areas which are slightly lower than the rest of the tank edges, to further prevent the orca from trying to get at each other.

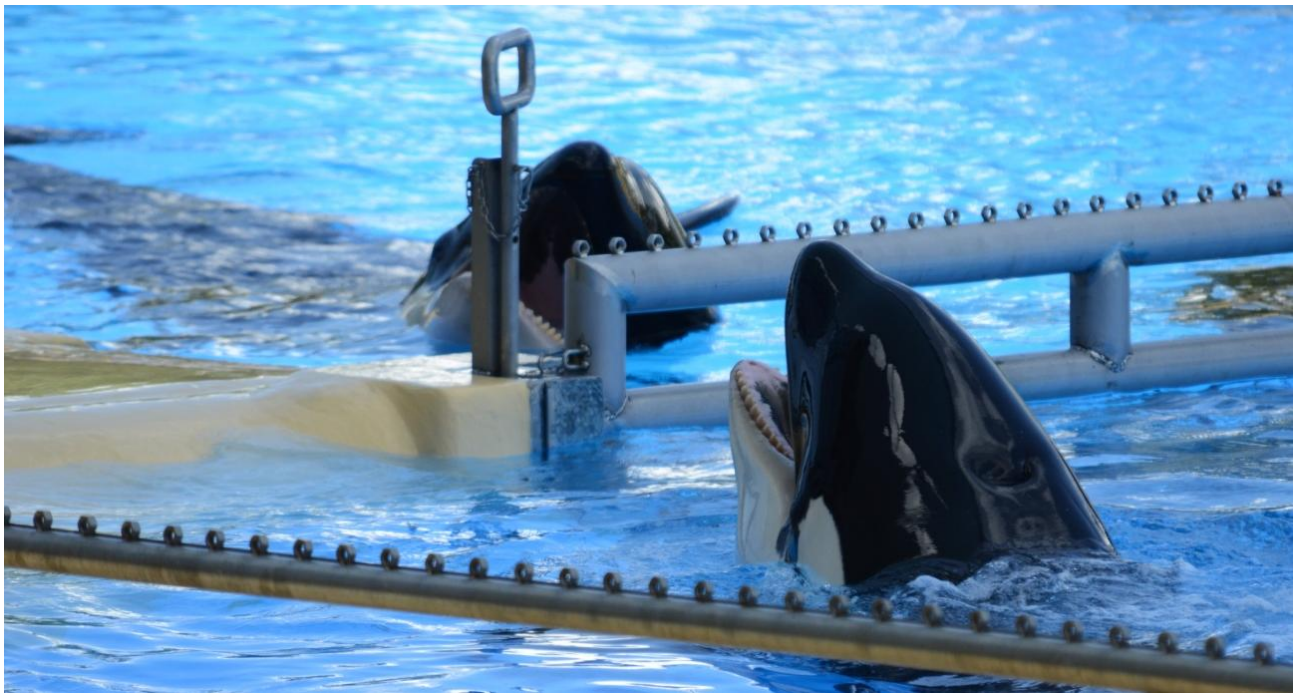


Figure 20. The aggression between the orca at *Loro Parque* is so elevated that the 'standard' barriers erected to keep the orca separated into different tanks have been reinforced with nuts welded onto their upper edges. These have also had to be installed on the gates between the tanks which do not have a walkway such as this gate (Gate D, see Appendix XX for details).

Figure 21. Two orca separated by a gate bash against it in an antagonistic attempt to fight. (Tekoha, foreground, in western tank, Tank 2 and Kohana in Medical Tank). This gate has a wide metal plate walk-way across the top, preventing the orca from attempting to get over it.

Almunia Portolés (2012) states in his report regarding Morgan at *Loro Parque,* that as a consequence of aggression from the other orca "... *Morgan has scars and rack* [sic: rake] *marks produced by the rest of the group, but none of them has ever need* [sic: needs] *veterinary attention*." Given the above evidence regarding the implications of rake marks, this statement clearly reflects a negligent attitude.

Furthermore, the aggression Almunia Portolés (2012) describes is not only continuing but it is also clearly escalating. It is apparent that the trainers are either unprepared to deal with it, do not recognise it, or do not realise the implications of such aggression. The trainers were frequently observed to just ignore Morgan and any issues she was having (e.g., Figures 11 and 22). Additionally, inexperience may be playing a part as the trainer pictured wearing a yellow cap (Figure 11) had no experience with orca (work history viewed via trainers social media page), prior to recently starting work with Morgan, yet was one of the main trainers she was observed with (unpublished data, Visser 2012). There are many published guides as to how to deal with, recognize and prevent this type of behaviour, including extensive volumes published by the captivity industry (such as the 578 page book by Rameirez (1999) with specific details on how to recognise the warning signs by the Shedd Aquarium) and papers published by head trainers of SeaWorld, such as Turner and Tompkins (1990) with their seminal paper on dealing with aggression in cetaceans and the common errors incurred by trainers.

Almunia Portolés (2012) himself, does not appear to understand the implications of what he is reporting with regards to aggression observed in Morgan, stating '*From the begining she* [Morgan] *showed a very peculiar social behaviour..... This particular behaviour (pushing down the other animals, even trying to bite them in the genital area)*.....", when it has been recognised by cetologists (whale and dolphin biologists) for nearly 10 years that attacks to the genital area are obvious indicators of aggression (Psarakos et al., 2003), as are jaw-clapping, violent head motions (Overstrom, 1983) and fast chases (Grahman and Noonan, 2010), all of which have been observed at *Loro Parque*.

The recent attack at SeaWorld, on 'Nakai', a captive-born, 11 year old male orca, who was assaulted by two other orca, resulted in a large piece of flesh (approximately the size of a dinner plate and at least 5 cm deep) being bitten off (Figure 1). Such a severe wound will affect the way he can masticate (chew) for the rest of his life, if he survives. If Nakai does live, he will also be permanently disfigured. Deaths as a result of aggression between captive orca have also been recorded (Jett and Ventre, 2011).

The *Loro Parque* group of orca regularly demonstrate abnormal behaviour and they are unstable and neurotic. Their atypical behaviour includes attacks on trainers and on each other. Noticeably *Loro Parque* must realise this disturbed and unpredictable behaviour, as they no longer allow their trainers to enter the water.

These behavioural issues extend to Kohana's two calves, born only 661 days (1 year, 9 months, 22 days) apart, as they have not been integrated into the group. Gestation period is still not well understood for orca and is currently estimated to be between 12-18 months, based on Reidenberg and Laitman (2008) and Robeck et al (2004). This suggests that Kohana was given little, if any, time to recover between pregnancies. She has attacked and rejected both calves, who have had to be hand reared and who now have their own social issues.

Morgan is regularly kept with Keto, the sire of these two calves. He has been observed chasing Morgan at high speed, body slamming her and his erect penis is often observed and has been photographed by observers whilst he pursues Morgan. Given her current age (in 2012) of

between 5-7 years, it is inappropriate that she is subjected to such intense sexual pressure and she should be kept separated from sexually mature males. This is of great importance when considering that her rehabilitation and release is under consideration and that if she falls pregnant there will be issues with regards to any offspring (who would be hybrids and could not be released with her). Sexual dominance is a form of aggression and as outlined above, aggression has been implicated at many levels in the death of captive whales and dolphins.

With all this evidence, including much of which is published by the captive industry, it is remarkable that *Loro Parque* continues to allow these attacks to occur. Furthermore, they attempt to disguise the severity of the situation by stating that Morgan is integrated with the group of orca held there and that any altercations are 'normal' social interactions.

From a welfare point of view this level of mismanagement is clearly unacceptable, but the same applies from a medical point of view. Buck et al (1987), state that "*Appropriate management of ..... captive marine mammals with cutaneous lesions* [rake marks] *should include isolation*."

It was ruled by the Judge in the Netherlands that it was necessary to move Morgan to a facility holding orca, rather than to begin her rehabilitation in a natural sea-pen, which was the preferred alternative. This was whilst deliberations were made as to her suitability for release. Despite warnings by the Free Morgan Foundation that *Loro Parque* was an inappropriate location due to the issues within the maladjusted orca group held there, Morgan was relocated to this facility.

Unfortunately, these warnings have proved to be fruitless and Morgan has suffered extensively. It is much more harmful for Morgan to be brutalised and attacked and harassed sexually as described here, than if she had been exposed to just a few months of solitary rehabilitation and subsequent release back into her native waters with wild orca. As it turned out, at the exact site where Morgan was to be rehabilitated and at the time which had been planned for her release, a member of Morgan's close family group, an adult male known as 'P118' was photographed (Vester & Ilmoni 2012).

Furthermore, the young Norwegian orca with a spinal deformity, known as 'Stumpy', has been resighted and is now considered to be a female. Stumpy orca lost her mother when she was only a few years old and has been adopted by a number of different groups. They provide her with fish (that is they catch the fish and carry them to the disabled orca). Also, this season, 'Springer' a young orca with remarkable parallels to Morgan (including being discovered alone, emaciated and requiring medical help) has been resighted after her rehabilitation and release back into the wild. Springer who is from the Pacific Northwest has now been free for 10 years and is regularly sighted with her extended family (Paul Spong, pers com 16 Oct 2012).

It is important to note that in the wild, dominance relationships have not been documented in dolphin society, but they are commonly described in captive groups (see Waples and Gales, 2002, and references therein). This is also the case for wild orca, with no accounts reported in the literature of orca ganging up and brutalising another as is described herein.

It is clear that Morgan must be immediately removed from this dysfunctional group of orca at *Loro Parque*, before she is injured any further and/or she succumbs to direct or indirect effects of the injuries and stress.

Morgan & Play

At no time during the 77 hours & 16 minutes of observation, was Morgan seen exhibiting *any* play behaviours with *any* of the orca held at *Loro Parque*, including Adán, whom *Loro Parque* claims she has an '*enormous interest*' in[3]. Morgan is clearly suffering from a lack of environmental enrichment. This has already been covered extensively by Visser and Hardie (2011) and it applies no less to *Loro Parque* than it did to *Dolfinarium Harderwijk*. Suffice it to say that there are severe issues with the lack of toys, lack of physical stimulation from the trainers and lack of environmental enrichment provided to Morgan (and all the orca at *Loro Parque*).

Morgan & Adán

Although Morgan is attacked by the orca at *Loro Parque*, she is not always passive in these altercations. Occasionally she will attempt to fight back against the aggressors (Visser unpublished data). However, more often she has been observed to attack Adán the two year old calf, which may be a result of her frustration at being attacked herself as well as frustration at the extremely limited environmental enrichment which is so inadequate to the extent that it is negligent.

This type of attack is called "redirected aggression". As Morgan cannot take out her aggression against the source, she takes it out on another animal she has dominance over. From the captivity industries own organisation (International Marine Animal Trainer's Association), their glossary of training terms defines it as "*When an animal is attacked or threatened by another animal of higher status, that animal may attack or threaten another animal of lower status presumably because it is not a good idea to aggress against an animal of higher status. The animal that is ultimately attacked is simply a scapegoat and usually did nothing to provoke aggression*." (www.imata.org, accessed 17 October 2012).

In each of these attacks, Morgan was observed to initiate forceful body contact (body slams, ramming etc) against Adán, who would attempt to flee, but was then pursued by Morgan. Morgan was observed to bite and 'rake' Adán, who showed fresh 'rake' marks from these altercations (Figure 2 and 3). As a young orca, Adán's bones will not be fully formed (Ogden et al., 1981) and as such he will be even more susceptible to the types of injuries mentioned above.

Morgan was also observed to 'bully' Adán by displacing him from a 'toy' or a 'location' on multiple occasions. Although other instances involved Adán (and these were non-aggressive, such as him accompanying Morgan on perimeter swims around the holding tank), these were typically for very short durations of approximately 1 minute.

[3] Almunia (2012) Unpublished report on the introduction of a rescued *Orcinus orca* individual into the Orca Ocean group.

Damage from stereotypic behaviours.

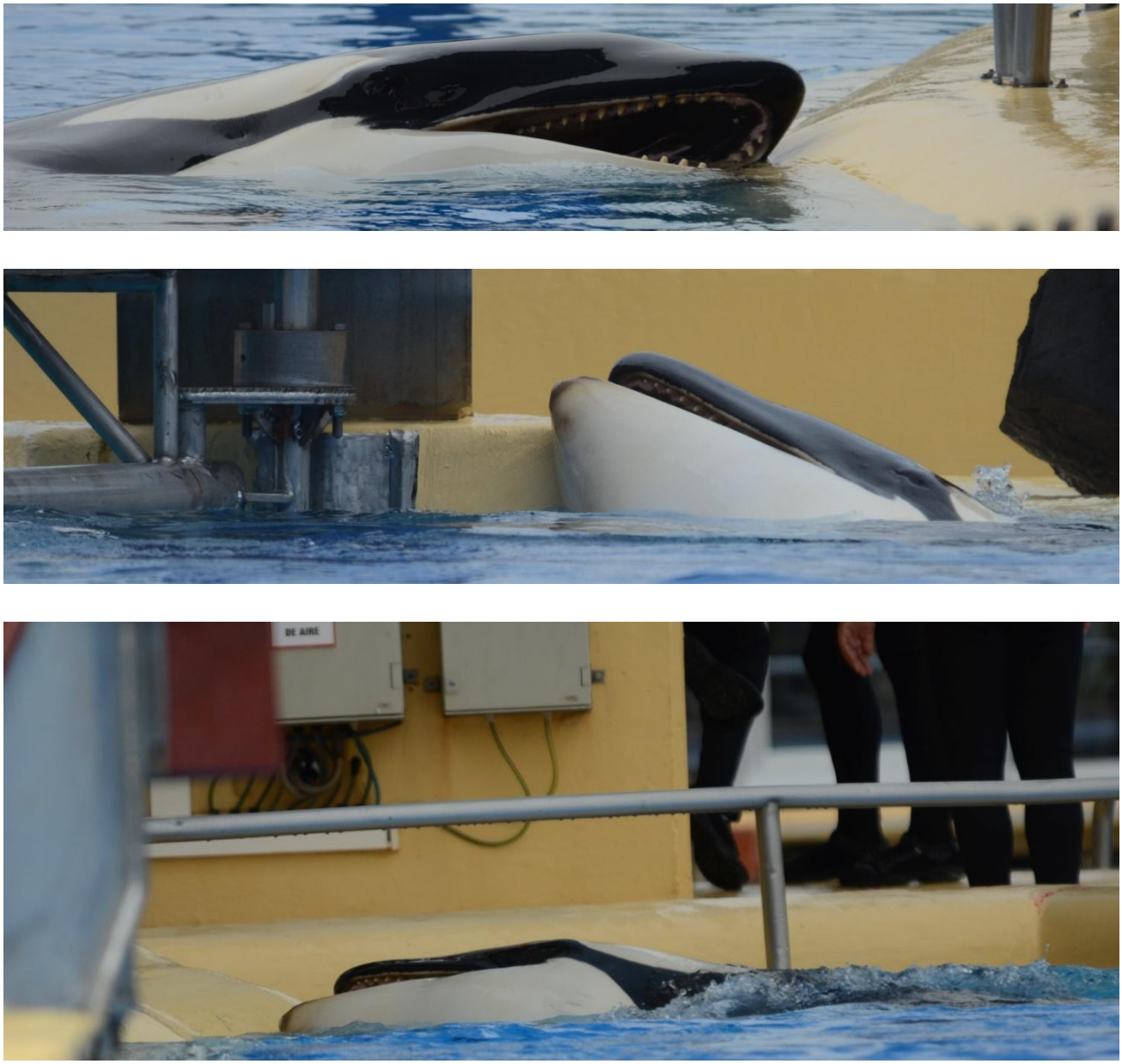


Figure 22. Morgan continues to exhibit stereotypic behaviours (abnormal repetitive behaviour). Such behaviours are typically the result of extreme boredom. She chews the concrete as illustrated in the three images above. Video documentation shows that this behaviour can continue on for hours. She also bangs her chin on the edge of the tank. Trainers will often be standing by observing this behaviour, yet offer Morgan no distractions or environmental enrichment. Note the trainers' legs in the upper right of the bottom photograph. On any one day there are typically at least five trainers working at the orca tanks (although up to nine have been observed and photographed working during one training session). Morgan shows signs of wear on her teeth from constantly gnawing at the concrete.

Figure 23. Morgan exhibits a hypertrophic scar on her lower jaws, most likely a result of repeatedly banging her chin on the concrete walls. Such stereotypic behaviour can become self mutilating to the point where the subcutaneous injury can become painful and itchy. Further damage to Morgan's rostrum through stereotypic behaviour inflicted on (2 July 2012). The trainers (on the day she inflicted these wounds and after they were inflicted) commanded her to push a ball repeatedly on the end of rostrum, in order to receive her allocated fish. Also note that the tips of Morgan's teeth are being worn off from chewing on the concrete (also see Figure 24).

Teeth & Gums

The crowns of several teeth of a captive orca, particularly on the mandible, are worn to the level of the pulp cavities due to biting the concrete structure of the pool (Graham and Dow, 2005). Food plugging partially vacant pulp cavities creates intense vascularization, inflammation, and eventually a systemic focus for infection (Graham and Dow, 2005) which can result in death. The crowns of the front of Morgan's teeth are showing signs of wear (Figure 23 and 24), from chewing in the *Dolfinarium Harderwijk* and at *Loro Parque*.

(Figure 24). Morgan's teeth (TOP & CENTER) are showing signs of wear from chewing concrete along the tank edges in the *Dolfinarium Harderwijk* and at *Loro Parque*. TOP: Note the darkened gums from inefficient dental care for Morgan. BOTTOM. Teeth from a wild orca of similar age to Morgan, showing sharp apex (photo taken underwater).

Tricks, Shows & Commercial Use

Figure 25. Morgan is being taught circus style tricks which are used exclusively for commercial shows. This is despite her EU CITES Transport permit being *exclusively* for Research. TOP LEFT, Morgan is being trained to hold her mouth open, whist shaking her head rapidly from left to right. TOP RIGHT. A 'target pole' is then added to the training session, to encourage Morgan to combine the open mouth and the head shakes with a high rise out of the water. This behaviour is termed the '*alien'* in the captivity industry (LOWER). It has no educational purpose, is never seen in the wild and encourages a behaviour (violent head shakes) that is known to be an aggressive behaviour in cetaceans, thereby possibly contributing to the aggression seen in captive orca (Overstrom, 1983).

Figure 26. Morgan (left, with chin on platform) during a commercial show. Despite the EU CITES permit being issued exclusively for *Research*, Morgan is used in the shows and billboards around the town (right) advertise her as an attraction for paying guests.

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Appendix One – METHODS

Tank & Gate Configurations and Definitions. References to Tank numbers are from documents submitted by *Loro Parque* during Court Proceedings in August 2011. The tank schematic is reproduced here (Figure 1a), with Gate designations (A-F) used herein, added by this author. A comparison image from Google Earth (Figure 1b) shows an aerial view of the tanks & surrounding structures.

Figure 1. Tank configuration at *Loro Parque*, Tenerife, Canary Islands, Spain. Letters designate gates. Note Figure 1(b) also shows the 'cover' over the seating area and Main Show Tank. The direct line measurement (using Google Earth), between the western and eastern edges of Tank 1 and 2, combined, is 78 m and is shown on Figure 1(b). (a) sourced from *Loro Parque* Court Documents, (b) from Google Earth (accessed 18 June 2012).

Figure 1(a)

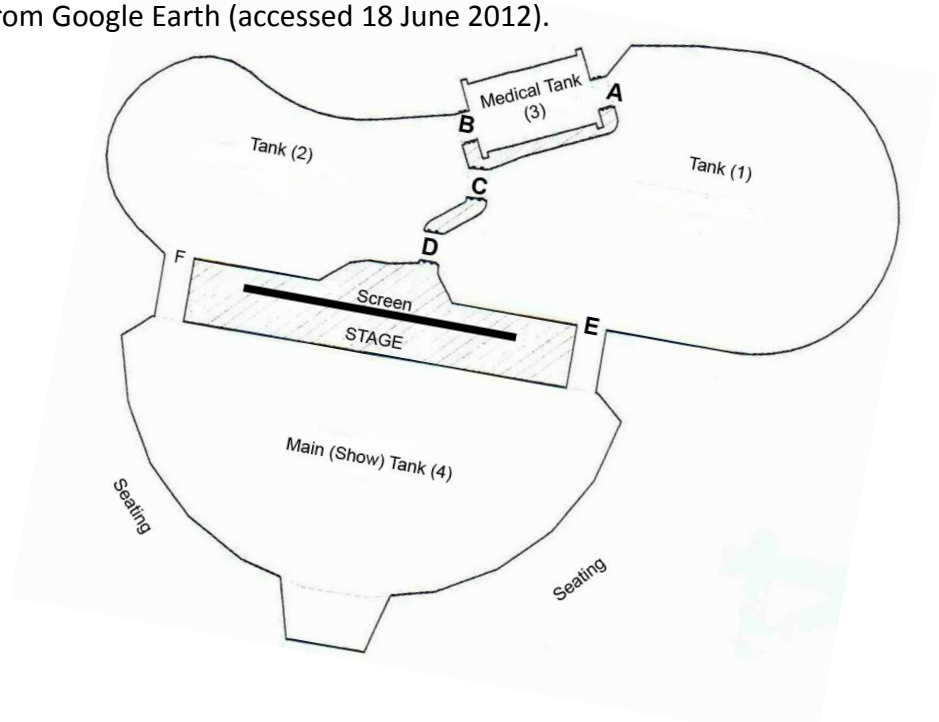
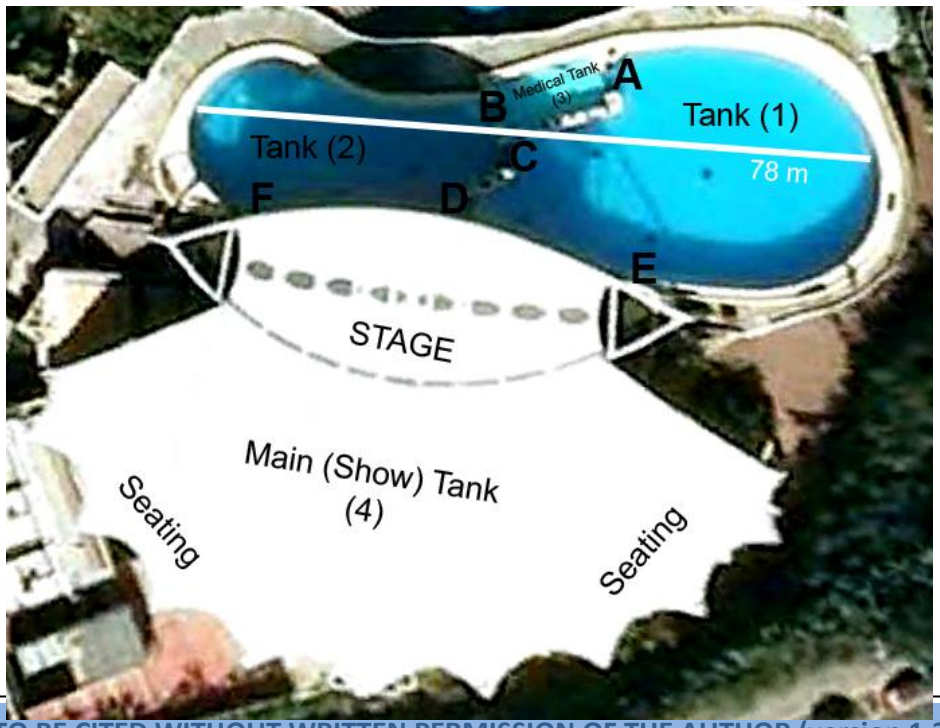


Figure 1(b)



Photographs.

Photographs were taken to illustrate certain aspects of behaviour as well as scarring, rake marks and other notable features (e.g., injuries) on Morgan. Meta-data on the raw photographs confirmed the corresponding time logged in the field notes (Visser, Unpublished Data, June 2012).[4]

Photographs were taken from one of four locations; (1) at the "Main Entry" into the stadium, (2) at the "Rear Entry" into the stadium, (3) at the back of the western side of the stadium and (4) at the back of the eastern side of the stadium (Figure 2). The latter two were chosen to provide enough elevation to allow visual observation of Morgan with minimal obscuring by the screen (Figure 3), or the support structures for the sun shade (Figure 3). A small selection of additional photographs were taken from within other areas of the stadium.

Of note is that observations from (1) were possible during all hours of observation, but points (2)-(4) were only possible during show times. Furthermore, since the authors attempts to document the situation at *Loro Parque*, the owner of the park has installed visual barriers to prevent observations from (1) (see Figure 4a & 4b).

Distances from which photographs were taken are from a minimum of 20 m and a maximum of 60 m (as based on measurements of the photographers location and Morgan's location, using the measure tool in the web-accessible program Google Earth (www.*earth.google.com)*.

Background and Context of this Report.

"Morgan" is a young female orca who was captured from the Wadden Sea (Netherlands) on the 23 June 2010, by the *Dolfinarium Harderwijk*, an entertainment park holding captive cetaceans.

Despite lengthy debates in which it was, *inter alia*, suggested that Morgan be moved to semi-natural or sea-pen facilities during deliberations about her status and repatriation to the wild, the *Dolfinarium Harderwijk* refused to consider these options.

Despite extreme controversy and a legal battle, the *Dolfinarium Harderwijk* transported Morgan (with the help of SeaWorld USA entertainment parks), to *Loro Parque* (Spain) another entertainment park, on the 29th of November 2011

The authorities and both entertainment parks completely disregarded numerous reports that *Loro Parque* was a unsuitable venue for holding Morgan, due to the extreme behavioural dysfunction of the orca group held at the park. This included that one of the orca had killed a trainer on 24 December 2009 and one of the females had, at that time attacked and rejected her calf. Since then this same female has also repeated this with her second calf.

[4] On the 10 June 2011, the camera and chronograph deviated in their synchronicity by 2:00 min:sec, in that the camera was recording a retarded time, e.g., if the chronograph recorded 12:28:00, the camera recorded 12:26:00

Since her arrival at *Loro Parque*, Morgan has been subjected to a number of events which are clearly not in the best interests of her welfare. She is not integrated with the other orca held at *Loro Parque*. She has been 'raked' (bitten), rammed, bullied and attacked by the other captive orca and she receives minimal human contact.

Access to observe Morgan up close, although respectfully requested by independent scientists, veterinarians and welfare experts, has been refused and kept strictly to those personnel who are pro-captivity.

Therefore, this report is compiled from data accessible only from public viewing times and areas. Although limited in their scope, it is a true reflection of the situation in *Loro Parque* as other evidence corroborates these findings.

Data Collection Constraints.

Loro Parque's President has refused close monitoring access to Morgan, for any member of the Free Morgan Foundation (pers. com., letter dated 5 March 2012, from Wolfgang Kiessling). Therefore, the data presented herein were collected during public viewing times and from public viewing areas, exclusively. All observations were made under the watchful eye of *Loro Parque* staff. These staff at times prevented photographs from being taken and observations to be made.

Loro Parque staff also prevented the author from returning under the standard *Loro Parque* 'returning visitors' ticket prices (2/3 discount), i.e., requiring the author to pay full price for subsequent visits.

Additionally, see Figure 19, in the main body of text, where gates were barricaded to prevent observations. Such behaviour by the President and staff suggests that *Loro Parque* is attempting to conceal events, behaviours and interactions between trainers and Morgan (or lack of interactions). It is perhaps of note that one *Loro Parque* staff member photographed the author on the 10 June 2012, without permission, as a means of intimidation.

Furthermore, due to the severe restrictions placed on observations of Morgan, any data presented here must be considered a bare minimum in terms of documentation of the scaring and wounds. Moreover, no claims can be made that the data is an unfair representation or manipulation of events as *Loro Parque* has claimed in the past (pers. com., letter dated 5 March 2012, from Wolfgang Kiessling).

Morgan's Location & Tank-Mate(s).

Morgan was not permitted to 'roam' freely between tanks, but kept locked within tanks as designated by the trainers. Only infrequently were gates left open between any two tanks (to allow Morgan to choose between those two tanks). Likewise, it was therefore by default, that she could not choose her tank mate(s), nor choose to be alone.

Other Orca.

At the time of writing, there were five other orca held at *Loro Parque*[5]. They are all captive bred in the USA and were shipped to *Loro Parque*, arriving on the 14th of February 2006.

"Kohana", female, born 04 May 2002 (i.e., 10 years old in 2012)

"Skyla", female, born 09 February 2004 (i.e., 8 years old in 2012)

"Keto", male born 17 June 1995 (i.e., 17 years old in 2012)

"Tekoa", male born 08 November 2000 (i.e., 12 years old in 2012)

"Adán", male, born 12 October 2010 (i.e., 2 years old in 2012)

Kohana is the mother of Adán. She attacked and rejected him immediately after birth. He was therefore hand-raised. Kohana, at the time of preparing this report is pregnant again[1], presumably to Keto, who is also the presumed father of Adán.

[5] Another calf was born on 03 August 2012, to Kohana. This calf was attacked and rejected by its mother and is now being hand-reared. It is a female called Vicky.

APPENDIX Two

MORGAN BODY PLAN LEFT SIDE

Detailed example of the 'body plan' of Morgan. Each 'frame' represents a photograph and the area within that photograph which shows rake mark(s).

The number within each frame designates the date the image was taken and the frame number.

e.g., 10-125 = 10 June 2012, frame # 125.

An example of two photos and their cropped in images are given for the following frames:

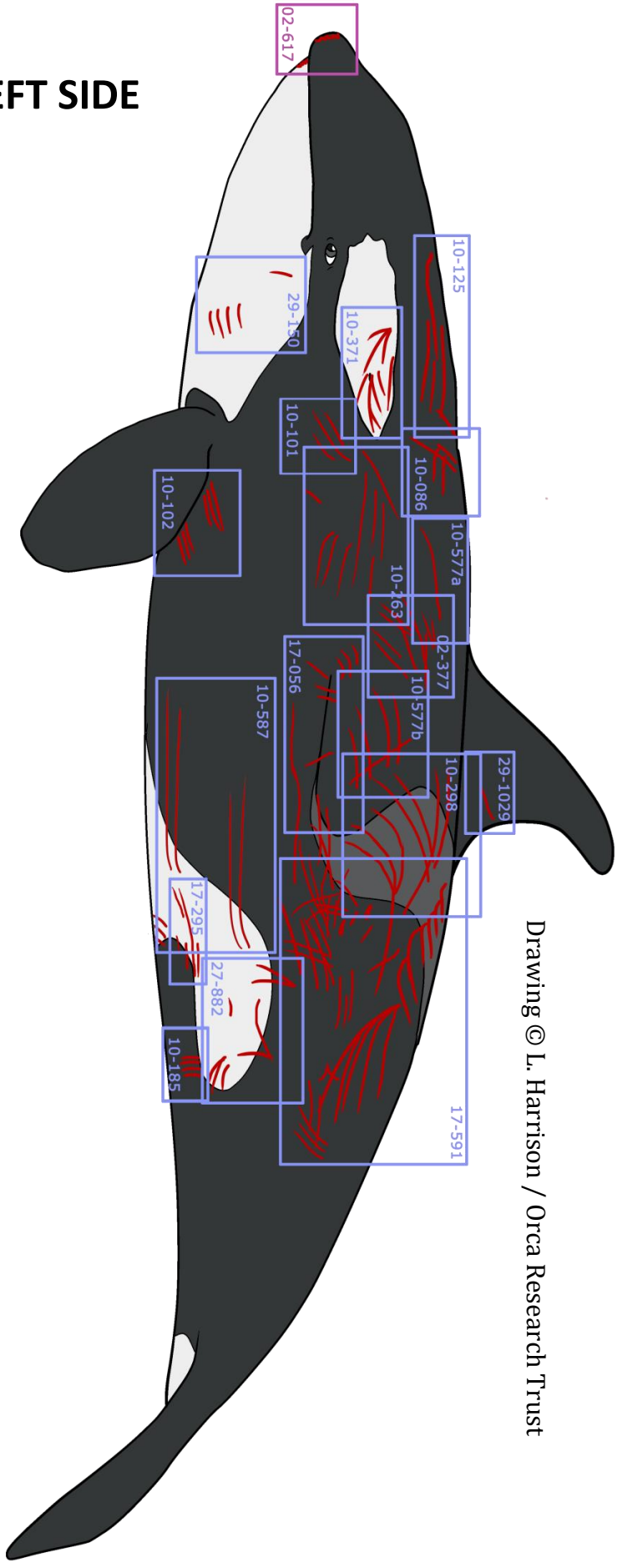
Photo 02-617

Photo 10-371

All images used on this body map were taken by the author and were all taken from at least 20 m (and up to 60 m), away from Morgan and often through barriers such as fences.

Therefore, it is highly likely that there were more rake marks and other wounds on Morgan's body that we not visible due to the distance from the observer to her.

A similar body map, with all the framing, was made for the right side and ventral surface of Morgan.

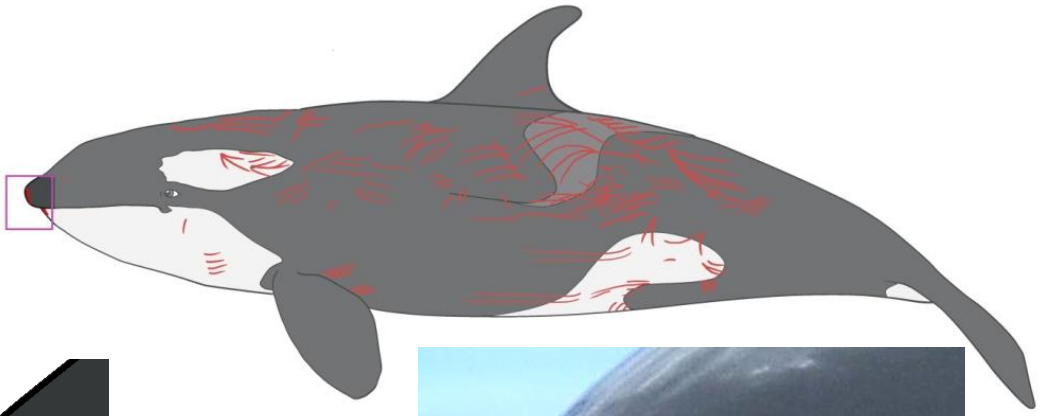


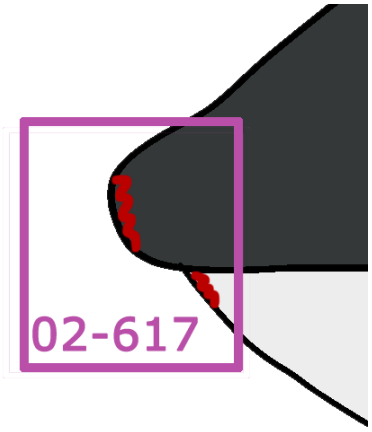
Drawing © L. Harrison / Orca Research Trust

APPENDIX TWO. Details of cropped image. Frame 02-617

Photo 02-617

(Raw wound on end of rostrum. First observed 02 July 2012)





APPENDIX Two. Details of cropped image. Frame 10-371

Photo 10-371