RESPONSE TO van Elk DOCUMENT

with regard to FREE MORGAN RELEASE AND REHABILIATION PLAN

submitted as part of an application by the Dolfinarium Harderwijk to

CITES

Compiled by the Free Morgan Group, 21 July 2011.

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SUMMARY

Neils van Elk, an employee of the Dolfinarium Harderwijk, the facility which currently holds the young orca known as Morgan, has attempted to discredit the Free Morgan Group (and its Expert Panel) as well as their expert experience. Furthermore he has attempted to discredit the Rehabilitation and Release Plan proposed by the Free Morgan Expert Panel.

Although the Dolfinarium Harderwijk is to be commended for their initial rescue of Morgan, and for the way in which they have restored her health, it is abundantly clear that they now have an agenda to keep Morgan in captivity (including shipping her to another facility). It is also very apparent that they are in no way attempting to facilitate any efforts to find her family or return her to her native waters of Norway, but are actively hindering them.

This document is in response to van Elk's criticisms and will clearly illustrate that the plan proposed by the Free Morgan Expert Panel is sound and based on careful consideration and extensive forethought. It will also show that the Plan was written with the flexibility to allow for contingency measures and the possibility of long-term care in either a semi-natural facility (such as a sea-pen) or through 'support' for Morgan whilst she remains in the ocean.

DETAILS

On Tuesday 19 July 2011, the council for the Orka Coalitie (Orca Coalition) was presented with the documents which the Dolfinarium Harderwijk had submitted in support of their application for a CITES permit to export ´Morgan´ the orca, to "Loro Parque" a theme park in Spain. That evening, the Free Morgan Group was asked to assist with responding to those documents, as the section of the application authored by Niels van Elk was comprised of an attempt to discredit the Free Morgan Group's Expert Panel's plan of Rehabilitation and Release, as well as a direct attack on the relevant expertise of the Expert Panel.

As part of the CITES application by the Dolfinarium Harderwijk, Neils van Elk had submitted a written document dated the 4th of April 2011. His document was in Dutch and as most of Free Morgan Group (including the Expert Panel) cannot read or write Dutch, we have had the document translated. We, the Free Morgan Group, respond

here in English and respectfully ask the appropriate authorities to accept this document as our submission in response to the comments by van Elk (4 April, 2011).

Unfortunately, van Elk was either supplied a copy of the Rehabilitation and Release Plan which was incomplete, or he **inadvertently** left off the last page of the plan which clearly states that the document may be used in whole, or in part, provided that the copyright notice accompanies that usage. We could find no evidence that this copyright was submitted with the Rehabilitation and Release Plan when the Dolfinarium Harderwijk submitted their CITES application. Furthermore, this same disclosure clearly states that the document is copywritten to the Free Morgan Group and Expert Panel, therefore van Elk's reference there not being a clear author is incorrect (and it should be noted that the following text is on the bottom of every page: © 2010 Free Morgan Expert Panel.

Based on the van Elk document submitted for the CITES application, and the comments contained therein, we are now aware that van Elk considers those members of the Free Morgan Group, who had been involved with the release of the male orca ´Keiko´ (known for his role in the movie *Free Willy*), into Icelandic waters, to be biased.

We would agree with this comment of his, because these biases work in a positive manner in the following ways;

1. We are all aware of the limitations of the release of Keiko and would not want to see the mistakes, some of which were pointed out in the Simon et al. (2009) peer-reviewed manuscript, repeated. Our collective experience from that project is a benefit, not a hindrance (and please see details below in Point 7 as well as it's subsections).

2. Two of the people listed by van Elk as being biased (Dr Ingrid Visser and Terry Hardie), recently visited Morgan at the Dolphinarium Harderwijk. They prepared a report (Visser & Hardie, 2011) which was distributed in early July 2011. In that report (page 44-45) they note that Wells et al. (1998) list eight recommendations when considering the rehabilitation and release of cetaceans. Visser & Hardie (2011) then note that of these eight recommendations all but one would be feasible during a rehabilitation and release program for Morgan. Their findings were further supported by the fact that both these authors were involved in the release of Keiko through the Free Keiko Project and were, additionally, asked by the Canadian Government to be consultants on the case of the lone orca known as Luna.

3. Many of our Free Morgan Group members have been involved in the rehabilitation and release of stranded and/or formally captive cetaceans (please see the list attached) and we only see such involvements as positive bias, not a negative. Through such involvement our collective experiences will contribute towards a successful rehabilitation and release of Morgan. Such

training is well recognized in the workforce (e.g., see Love et al 2001). Hammer & Champy (1993) discuss that “training” increases skills and competence and teaches the “how” of a job and “education” increases the insight and understanding and teaches the “why” behind a process.

Additionally, it should be noted that the collective experience, training and education of the members of the Free Morgan Group increases their potential to deal with the required flexibility of the plan. This same collective ‘skill base’ will also increase their abilities to be able to solve any foreseen and/or unforeseen difficulties which will inevitably arise. It has been clearly demonstrated in the past that novices have difficulties with problem-solving that can be attributed, to a large extent, to the inadequacies of their knowledge bases (e.g., see Glaser (1983) and references therein). The members of the Free Morgan Group and Expert Panel have an extensive range of experience and training in the field, laboratory and office, as well as an outstanding level of higher academic education. To assume that such experience and skill-sets are a negative bias would be nonsensical.

Given that the Free Keiko Project involved extensive (and in many cases world-first examples of), logistics, equipment, methodologies and techniques it would seem to be more than common sense and certainly logical to utilize and build on such a base, rather than ignore it.

Much of the Free Keiko Project was conducted in the extreme conditions of the Icelandic coastline and offshore seas (and it should be remembered that similar conditions could be experienced in Norway). Therefore, it would also be extremely prudent to encourage at least some of the same personnel who were utilized for the Free Keiko Project, to participate in the release of Morgan, as they already have the skill base and knowledge of the difficulties and conditions under which that plan was implemented.

Perhaps to indicate the level of importance that has been placed on this experience, it must be noted that the members of the Expert Panel were all *invited* to join the Free Morgan Group, based on their relevant professions, qualifications and experience. Also, the Free Morgan Group and it’s Expert Panel were formed *specifically* for the rehabilitation and release of Morgan.

Van Elk comments that the Rehabilitation and Release Plan for Morgan is devoid of scientific references. We would, again, fully agree with him. However, we would like to note that;

4. The intention of the Plan was not to present a document for publication in a scientific journal, but rather a document which could be assimilated into the world of the lay-person, to enable the public to understand the process. But we also wanted to ensure that the document was soundly based on the expertise and scientific knowledge of the authors, yet remained flexible enough to accommodate the changing requirements of Morgan, our

understanding of her situation and the possible venues for her release back into the wild.

5. Although the document may look simple in format, the wording is specifically chosen to be clear but precise and the Plan is, in fact, a robust outline for Rehabilitation and Release of Morgan. It is based on extensive and wide-ranging experience (see 1-3 above). It should also be noted members of our group who contributed to the Plan included not only scientists and researchers but also those who were/are animal trainers, conservationists and animal welfare advocates. We also consulted with external experts who provided valuable contributions towards the Plan.

6. The suitability of Morgan, for release, was assessed by members of the Free Morgan Group/Expert Panel, under the protocols outlined in the CITES Process flow-chart, entitled ´Decision tree for "Return to the Wild" options´ (p 10-13, ANNEX 1, CITES guidelines for the disposal of confiscated live animals). We attach here the flow-chart, modified with the addition of our decisions and justifications (see Appendix One). In summary the main points in this process were that we could apply a response for all Questions asked such that the final Outcome was that Morgan fits the profile of an individual which should be released back into the wild.

7. Whilst formulating the Rehabilitation and Release Plan for Morgan, the authors (i.e., the Expert Panel of the Free Morgan Group) had consulted and observed the IUCN (*International Union for Conservation of Nature*) Re-introduction Guidelines (1998) which had been written by an expert panel of re-introduction specialists.

   It is vitally important, given that the fate of a cognitive and sentient being hinges on this case, to outline who the IUCN is, so that the appropriate level of reverence is given to these Re-introduction Guidelines. The following is extracted from the IUCN website (www.iucn.org) but is edited for content and clarity.

The IUCN (International Union for Conservation of Nature), is the world's oldest (formed in 1948) and is largest global provisional environmental and conservation network. It is comprised of a democratic membership union with more than 1,000 government and non-governmental organization (NGO) members. Additionally it has almost 11,000 volunteer scientists in more than 160 countries. IUCN's work is supported by more than 1,000 professional staff in 60 offices and hundreds of partners in public, NGO and private sectors around the world. The Union's headquarters are located in Gland, near Geneva, Switzerland.

IUCN helps the world find pragmatic solutions to our most pressing environment and development challenges. It supports scientific research, manages field projects all over the world and brings governments, non-government organizations, United Nations agencies,

companies and local communities together to develop and implement policy, laws and best practice.

The IUCN is also responsible for the compilation, maintenance and updating of what is commonly termed the 'Red List' – the most comprehensive database of known plants and animals in the world and their conservation status. The 'Red List' provides us with the official definitions for our commonly used terms, such as 'Endangered' and 'Threatened'.

Then again, although the Morgan Rehabilitation and Release Plan may appear at the ´surface´ to be simplistic, it is far from that as extensive research and forethought went into it.

Given that we were aware that there were limitations to the IUCN Re-introduction Guidelines in terms of the unique case of Morgan and, that her situation does not necessarily fit neatly with a specific clause, definition or terminology framework, we had identified those aspects. We outline them in the attached document (Appendix Two).

Regardless of the non-specific nature of how Morgan's case fitted within the IUCN Re-introduction Guidelines, there were still very valid and important aspects to consider when formulating the Rehabilitation and Release Plan.

For example, some points extracted from the IUCN Guidelines suggest the following (in bold italics, with our notes below);

a. ***Detailed studies should be made of the status and biology of wild populations (if they exist) to determine the species' critical needs. For animals, this would include descriptions of habitat preferences, intraspecific variation and adaptations to local ecological conditions, social behaviour, group composition, home range size, shelter and food requirements, foraging and feeding behaviour, predators and diseases. For migratory species, studies should include the potential migratory area.***

   Our response to this guideline is that, from the acoustical matches and DNA studies it appears that Morgan originates from the Norwegian population of orca. Studies have been done on this population of orca by various scientists over many years. These studies fulfill many of the criteria outlined above.

   With respect to the last sentence in this clause of the guideline above (i.e., migration), it is unclear how far the orca, which have been photographed off the Norwegian Coast, travel or migrate. However studies have been conducted on orca in various locations throughout the northern Atlantic as far south as the Strait of Gibraltar and include areas such as Britain, Scotland and Iceland. (Please see Gray 1870; Ulmer 1941; Bourne 1966; Christensen 1982; Christensen and Ørtisland 1982; Evans, Yablokov et al. 1982; Haug and Sandnes 1982;

Christensen 1984; Lyrholm 1984; Lyrholm 1987; Lyrholm, Leatherwood et al. 1987; Lien, Christensen et al. 1988; Lyrholm 1988; Moore, Francine et al. 1988; Sigurjonsson and Leatherwood 1988; Sigurjonsson, Lyrholm et al. 1988; Similä, Lyrholm et al. 1990; Bisther and Vongraven 1993; Similä and Ugarte 1993; Vongraven and Bisther 1993; Bisther and Vongraven 1995; Strager 1995; Vongraven and Bisther 1995; Similä, Holst et al. 1996; Nøttestad and Axelsen 1999; Domenici, Batty et al. 2000; Damsgård and Haug 2001; Nøttestad and Similä 2001; Ugarte 2001; Williamson 2002; Guinet, De Stephanis et al. 2004; Simon, Wahlberg et al. 2005; van Opzeeland, Corkeron et al. 2005; Luque, Davis et al. 2006; Foote, Víkingsson et al. 2007; Guinet, Domenici et al. 2007; Wolkers, Corkeron et al. 2007; Foote, Newton et al. 2009; Christensen unknown date).

b. Thorough research into previous re-introductions of the same or similar species and wide-ranging contacts with persons having relevant expertise should be conducted prior to and while developing re-introduction protocol.

Our response to this guideline is that, as outlined in points 1-3, our Free Morgan Group members have extensive experience with the species in the wild, in captivity and in rescues, rehabilitations and releases. This IUCN Guideline clearly endorses our members involvement in the rehabilitation and release of Keiko, in contrast to van Elk suggesting that it is inappropriate and implying that it may create a negative bias.

We have also consulted with other experts who have additional experience in the area of cetacean (whale, dolphin and porpoise) rehabilitation and release. We have consulted scientific peer-reviewed documents as well as scientists and experts who have had to work in unique and challenging environments, locations and/or species. (e.g., please see the follow for some examples; St. Aubin, Geraci et al. 1996; Iñíguez 2000, Wells et al., 1998; Stewart 2001; Simon, Murrey et al. 2004; Simon, Hanson et al. 2009).

c. Site should be within the historic range of the species.

Our response to this guideline is that, as outlined in 7a, it has been indicated that Morgan originates from the Norwegian population of orca. Orca have historically been known in this area (see references listed in 6a) and are commonly still found in the waters off Norway. Also, orca have been sighted there recently (Heike Vester, pers. comm. to Dr Visser, 21 July, 2011). Additionally, there have been sightings of orca in the North Sea in the last few months (see references in Visser &

Hardie, 2011), as well as off Shetland, United Kingdom, between 16-17 July 2011[1].

d. Release of captive stock

Most species of mammal and birds rely heavily on individual experience and learning as juveniles for their survival; they should be given the opportunity to acquire the necessary information to enable survival in the wild, through training in their captive environment; a captive bred individual's probability of survival should approximate that of a wild counterpart.

Our response to this guideline is that, as outlined in the Free Morgan Rehabilitation and Release Plan, the framework we had constructed involved moving Morgan as soon as possible into a semi-natural environment (i.e., not holding her for over a year in the impoverished conditions described in Visser & Hardie, 2011). The plan also clearly outlines multiple phases and methodologies which would be employed to rehabilitate Morgan. These cover not only physical aspects, such as fitness, but also behavioral aspects, such as assurance that Morgan is provided with environmental enrichment (see page 7 of Visser & Hardie (2011) for definition).

It should be noted that the Rehabilitation Plan encompasses aspects which take into account Morgan's welfare, which has been sadly lacking where she is currently held (see Visser & Hardie 2011 for details).

Furthermore by providing Morgan with live fish for her to capture, we would be enhancing her physical and mental recovery from the stark environment and inappropriate food she has been supplied in the last year. At no time whilst she has been in the Dolfinarium Harderwijk are we aware that Morgan has been provided with live fish for her to capture, yet such a skill would be vital for her survival in the wild. However, please note that an orca from the Norwegian population has been noted by researchers to be unable to hunt for its self and has been provisioned by other orca from within the population (e.g., see p. 48-49 in Stenersen & Similä, 2004 and H. Vester, letter to Netherlands Government; 21 July 2011, attached).

e. ***Approval of relevant government agencies and land owners, and coordination with national and international conservation organizations.***

Our response to this guideline is that we would hope that, with all the documentation and experience outlined in this and the accompanying

[1] http://www.redeker-photography.com/website/TLL/redeker.php?OPId=8&Curr=1&lId=1&&lId=1

documents, as well as all the endorsements from supporting experts, the Netherlands Government will provide support to the Free Morgan Group to enable Morgan to be rehabilitated and released so that she can join her native population. In addition, it will be a necessity for the Netherlands Government to issue the appropriate permits for Morgans rehabilitation and release.

We have the full cooperation of the DeltaPark Neeltje Jans (please see the attached letter from the Director, B. van der Hoef, dated 21 July 2011), to host Morgan and support the team of the Free Morgan Group. The facilities at DeltaPark Neeltje Jans have an extensive area for holding Morgan within a semi-natural enclosure, which has natural tidal range, natural salt water, natural plants and natural marine creatures (e.g., fish and crustaceans). Members of the Free Morgan Group have personally viewed the facilities and have observed the enclosure which has been offered and endorse the offer by DeltaPark Neeltje Jans (see Figure 1 in B. van der Hoef letter dated 21 July 2011).

Furthermore, the Free Morgan Group has the endorsement of multiple international organizations which specialize in cetacean research, conservation and education, as members of these organizations are key personnel in the Free Morgan Expert Panel and participate in advisory roles. These organizations include the largest non-government organization in the world, for the conservation of whales and dolphins as well as three of the longest-running orca research projects in the world.

Additionally, we have recently been joined by Jean-Michel Cousteau and his organization Ocean Futures, which not only is internationally recognized for their work in marine conservation in general, but has had direct experience with the rehabilitation and release of orca. This involved Keiko (Free Willy) as well as the rescue and release of a stranded young orca in New Zealand (with Dr Visser and the Orca Research Trust).

It should be noted that the Free Morgan Group was formed specifically to facilitate the rehabilitation and release of Morgan. It is a non-profit organization and all members do not receive remuneration for their participation. This is in direct contrast to the staff of the Dolfinarium Harderwijk who are all paid employees. To date (21 July 2011) more than 600 hours of time have been gifted to the Free Morgan Group by its members. This time has been utilized for the preparation of documents for the Release Plan, the supplementary reports, compilation of additional documents, site visits and preparation of educational materials. In addition to the donated time the members have supplied substantial financial assistance towards these items.

f. Construction of a multidisciplinary team with access to expert technical advice for all phases of the programme.

Our response to this guideline is that, as outlined in the Free Morgan Rehabilitation and Release Plan and detailed in points 1-3 above, the members of our group encompass researchers who work specifically with orca (covering different subjects, locations and populations of orca). They also include individuals who have expertise with other cetacean species.

Additionally the Free Morgan Group encompasses trainers with experience with cetaceans (including orca) and animal welfare specialists. We also have an extensive network of volunteers who are available for vital but unskilled jobs to ensure that the experts can focus on their relevant tasks. To ensure that the public are well informed about the progress Morgan is making, we have education specialists as part of our team.

g. Design of pre- and post- release monitoring programme so that each re-introduction is a carefully designed experiment, with the capability to test methodology with scientifically collected data. Monitoring the health of individuals, as well as the survival, is important; intervention may be necessary if the situation proves unforseeably favourable.

Pre-release monitoring is already being conducted in the area where Morgan´s population is currently found (see letter from H. Vester, to Netherlands Government; 21 July 2011, attached). Research has been conducted on this population previously (see references in 6a). If Morgan is given the opportunity to be returned to Norway, it is anticipated that further research will be conducted in the area by members of the Free Morgan Group, in cooperation with existing research programs and with researchers based in the area.

Additionally, Morgan will be monitored pre-release through observations of food intake, levels of activity, mental awareness, heart rate and respiratory rates as well as her acoustical repertoire. Morgan will be trained for husbandry procedures, so that they will become an intrinsic part of her care and health maintenance. It is possible, using postive reinforcement training methods, to train Morgan to cooperate with a wide range of behaviours such as endoscopies (e.g., see Sanchez & Hardie, 2011). Monitoring Morgan´s weight is possible without lifting her into a cradle or crane, for instance, by training her to ´beach´onto a ´platform´ or ´beaching´ scale.

Objectives and performance targets would be ascertained in association with qualified orca trainers and orca veterinarians who have experience with *modern* marine mammal practises, medical care and training methods (e.g., see IMATA website (www.imata.org) for current training methods). The health and welfare of Morgan would be paramount to the rehabilitation and release plan and this aspect is clear in the multi-level plan with its contingencies.

The scientists involved in the Free Morgan Group have extensive experience with collecting data on both wild and captive cetaceans and will also seek collaborations with other researchers, scientists, institutions and organisations, in a wide field of specialties. The unique situation with Morgan, in that she is wild-born and will, hopefully be wild-returned, provides the opportunity for certain types of data to be collected for the first time. An example is the heart rate, respitoray rate and acoustical and video recordings as she approaches a group of orca (all of which could be collected with a recorder attached to Morgan via benign suction cup).

Should it not be possible to release Morgan into the wild permanently it would still be feasible and encouraged that scientific data is collected and non-invasive experiments conducted with her in the semi-natural environment of DeltaPark Neeltje Jans. For instance, the monitoring of breath-holding capabilities as well as self-awareness investigations which could advance our understanding of the physiology and mental capitity of the species.

h. ***Determination of release strategy (acclimatization of release stock to release area; behavioural training - including hunting and feeding; group composition, number, release patterns and techniques; timing).***

Our response to this guideline is that, the Free Morgan Rehabilitation and Release Plan encompasses acclimatization of Morgan back into a semi-natural enclosure which uses natural sea water. The behavioural training of Morgan will encompass hunting and feeding. The patterns, techniques and timing protocols are also outlined in the Release Plan. The group composition, in terms of number of animals to be released is one and the group composition into which she will be released will be dependent on the individual animals which frequent the release site (Norway) at the time Morgan is ready for release.

i. Development of conservation education for long-term support; professional training of individuals involved in the long-term

programme; public relations through the mass media and in local community; involvement where possible of local people in the programme.

Many of the members in the Free Morgan Group already have experience with rescue, rehabilitation and release of various species of cetaceans. We have written commitmittents from various members as well as volunteers who are able to be involved in the program long-term. Through the network of organisations which the members of the Free Morgan Group are affiliated with, there is an extensive number of volunteers who have a proven record of commitment, from which we can draw upon.

The Free Morgan Group has a ´letter of intent´ (see attached, B. Van der Hoef, letter dated 21 July 2011) stating that DeltaPark Neeltje Jans can offer a location for Morgan to be rehablitated in, as well as facilities which will assist such as holding tanks for live fish. They are also willing to collaborate in the form of providing office space, parking and other ´staff´ facilities for the members of the Free Morgan Group.

j. Re-introductions are generally long-term projects that require the commitment of long- term financial and political support.

We are aware that this project may last years and should the release of Morgan not be able to be completed, we realise that Morgan will require care for the extent of her life time (which under natural conditons may be as long as 90 years).

We have discussed this within the membership of the Free Morgan Group and there are certain members which can continue to be committed to Morgan for the total duration (possibly decades). During conversations with the Director of DeltaPark Neeltje Jans, we also indicated that the program could extend into multiple years and he expressed that the management would have no problems with that. All this support, along with the support of the volunteer programs outlined in (i) above, we feel confident that we will be able to care for Morgan long-term.

k. The welfare of animals for release is of paramount concern through all these stages.

One of the greatest concerns, that has been expressed by mutlitple parties, is the existing atrocious conditions Morgan has been held in for over a year now. For examples please see Visser & Hardie (2011) and letter from Dr F. Wemelsfelder to Dr Visser, dated 19 July and Sanchez

(2011) in response to viewing video of Morgan whilst she was held at the Dolfinarium Harderwijk.

It is clear, even to those not experienced in animal welfare (e.g., see page 22, Visser & Hardie 2011), that Morgan's welfare is not paramount for the facility. Additionally, it should be noted that the Netherlands Governing body is responsible for the issue of permits for holding animals such as Morgan (e.g., see letter from Dr Henk Bleker, the Minister of Agriculture and Foreign Trade, undated but received in May 2011, their reference number 180009, attached).

Naturally, if Morgans welfare had been of concern she would have been moved to a more suitable facility such as DeltaPark Neeltje Jans as soon as she was given a clean bill of health.

l. Post release monitoring is required of all (or sample of) individuals. This most vital aspect may be by direct (e.g. tagging, telemetry) or indirect (e.g. spoor, informants) methods, as suitable.

Our response to this guideline is that, the Release section of the Plan includes Phase 4, which outlines our intentions to use radio and satellite telemetry to monitor Morgan. As the technology for such devices is developing at a fast rate (e.g., see Andrews, Pitman et al. 2008) it would be imprudent to define here which devices would be used, but suffice it to say that the very best devices would be deployed onto Morgan which would inflict the minimal impact.

Indirect monitoring will be done by observations from boats and with hydrophones. Where at all possible, the process will be documented with video and photographs, to allow subsequent analysis of the data as well as provide educational material for future rehabilitation and release projects of cetaceans, as well as for the general public, in the form of news items, documentaries, internet news groups, social media sites and popular style articles in print media such as newspapers etc.

m. ***Interventions (e.g. supplemental feeding; veterinary aid; horticultural aid) when necessary.***

Our response to this guideline is that, in the Rehabilitation and Release Plan we have suggested that the veterinarian(s) which have been working with Morgan until the point of moving her, should accompany her. We have also been interested in participating with the staff at the Dolfinarium Harderwijk and have commended them for their work to restore Morgans physical health from the emaciated and dehydrated

state she was found in to her current healthy condition (see commendations and key facts in Visser & Hardie 2011).

During all Phases of the Rehabilitation and Release Plan we would supply Morgan with food. Although to some degree the volume would have to be controlled, to prevent her become overweight and out of shape, we would still be encouraging her to feed well and strongly encourage her to capture her own live fish which we would release for her into the enclosure.

Once Morgan has been released out into the waters of her origin, there are Contingency plans in place (e.g., see Phase 3, Contingency, p 8, of the Morgan Rehabilitation and Release Plan).

n. Decisions for revision, rescheduling, or discontinuation of programme where necessary.

Our response to this guideline is that, in the Rehabilitation and Release Plan we have four Phases, each of which has a ´fall-back´ or ´contingency´ plan. Please see the Plan for details within each Phase.

o. Continuing public relations activities, including education and mass media coverage.

Our response to this guideline is that, in the Rehabilitation and Release Plan we have outlined that we would encourage education and media coverage (e.g., see page 3 and 7).

p. An assessment should be made of the taxonomic status of individuals to be re- introduced. They should preferably be of the same subspecies or race as those which were extirpated, unless adequate numbers are not available.

Unfortunately the DNA sample of Morgan has not been released to interested parties to carry out independent analysis, depite repeated requests from various stakeholders and researchers.

Justification for withholding the DNA sample has been given by the Dolfinarium Harderwijk by stating that Morgan's "**privacy**" would be invaded if the DNA was released (letter submitted April 2011 to Council for the Orka Coalitie / Orca Coalition).

Such a position may be hard to justify, when the very same Dolfinarium Harderwijk opened up public viewing (for a fee) of Morgan from approximately one week after her capture. From the begining of this process, the Dolfinarium Harderwijk allowed the extensive use of video

cameras and photographs, by not only the media but also professional videographers and photographers and the public. There are now 100's of photographs of Morgan on the internet, from her intial sighting by the Dolphinarium, during her rescue and, where most of the images originate from, her time in captivity.

Additionally, it is hard to see how Morgan's "**privacy**" could be violated by allowing her DNA to be analysied when it is clearly to be used in her best interests, i.e., an attempt to locate her natal group and population stock. Obviously, should there be any *real* concerns over Morgan's privacy with regards to her DNA, it would certainly be possible to release the DNA along with a cavet that stated that the DNA could only be used in such a context (i.e., to locate her natal population). Alternatively, if privacy is of such concern, then perhaps the way to circumvent such issues would be to submit the sample as 'anonymous', thereby the results would be a simple DNA profile, without revealing the source. Naturally, once the results were available, and again only if Morgan's privacy is the *real* issue, certain scientists, perhaps with 'official clearence', could be issued with the profile and the comparable database in order for the computer programs to be run to search for a match for Morgans family.

Also, it is surprising that the DNA would not be released to those interested parties who have repeatedly requested it, when it had already been released to Dr Andrew Foote, of the Centre for GeoGenetics, University of Copenhagen, Denmark. We are aware of Dr Foote's commendable reputation in the field of orca genetics and we applaude him for his attempts to find Morgan's natal population. We wish to clearly state that in no way are the members of the Free Morgan Group and its Expert Panel attempting to discredit Dr Foote or his work. On the contrary we have, as scientists and interested parties in the orca research world, cited his peer reviewed documents in our own work and/or followed his career with interest.

However, we would question, why, in Dr Foote's undated and unsigned letter (which may therefore be questioned in terms of its validity), he states "*It is therefore my independent opinion that the request for DNA from FreeMorgan [SIC] should not be granted, it will not provide any further information that can help Morgan and is not in her best interest*" (Foote, submitted as part of the document bundle by the Dolphinarium Harderwijk, in it's application for a CITES export permit for Morgan). It is unclear to us how withholding this data could in anyway be in Morgans' '*best interest'.*

Surely, it would make sense to verify any findings as the results are of such magnitude that Morgans fate hangs in the balance, based on these very findings. We can say this as the Dolfinarium is stating (and

continues to maintain) that it is not possible to find her family (based on the DNA results) and therefore she cannot be released (see van Elk 2010). It must also be considered that there may be researchers/genetists (other than Dr Foote) who hold genetic information and/or DNA samples of orca from the North Atlantic area, including Norway and Iceland. It is not unrealistic that a match may have been possible to such a sample, if the data from Morgan's DNA analysis was made freely available.

We would also like to point out that the Free Morgan Group, on behalf of and with the Expert Panel, had requested the raw data to be supplied numerous times (e.g., see letter from Free Morgan Group dated 18 April 2011 and email dated 26 May 2011 and references therein). These requests have all been denied (for the reason of '***privacy***' as indicated above), for the reason '***to avoid improper use***' and that the Dolphinarium Harderwijk states that the Free Morgan Group is '***not considered as an interested party*'** (see email from Foppen, Director, Dolfinarium Harderwijk to Free Morgan Group, via L. Pozzato, dated 1 June 2011, attached).

Obviously, it is entirely possible that Dr Foote intends to publish his findings in a peer-reviewed journal and therefore does not wish to make his protocols and results accessible to others. However, should he have made this intention known to the Scientists on the Expert Panel we would have been more than happy to have signed an 'embargo' document preventing us from publishing any work involving Morgan's DNA until a suitable timeframe had expired, allowing Dr Foote's time to publish his work. Alternatively, it may be that Dr Foote was under obligations to the Dolfinarium Harderwijk as his comment in his email (to L. Pozzato, dated 7 August 2010, attached), suggests: "*I promised the Dolfinarium not to discuss the results and I have to respect their wishes*." We believe that professionally withholding data in the manner that the Dolfinarium Harderwijk has done, is not to the benefit of Morgan and is in fact detrimental to her health and wellbeing as it has directly resulted in the prevention of other researchers collaborating or collecting data independently (e.g., recently orca have been present in the Norwegian waters, who share some of the same calls as Morgan (see letter H. Vester, 21 July, 2011, attached). If Morgan's DNA profile had been made available, it may have been possible for additional samples of DNA to have been collected from those orca for comparison, however there was no advantage to collecting these samples if Morgans profile was being actively withheld, preventing any comparisons).

Although the undated letter of Foote also states that '*The details of the work conducted have previously been given in the extensive and*

comprehensive report compiled by Neils van Elk', Foote does not give the full citation details of this report. We are lead to believe that it may be the report entitled *Expert advice on the releasability of the rescued killer whale (Orcinus orca) Morgan* (dated 14th November 2010), in which if this is the case, the details are only listed as two short paragraphs. For clarity these extracts from the van Elk (2010) report are reproduced here ;

Page 8 "*DNA analysis of Morgan indicates she likely originates from the population of killer whales associated with the Norwegian herring hunting population. An Icelandic origin cannot be excluded completely due to lack of available samples from Iceland. The complete mitogenome (16,400 base pairs) from one sample from Iceland analyzed differed by 2 base pairs from the DNA sequence of Morgan. Additional samples from Icelandic killer whales may help resolve this ambiguity*."

Page 11 "[point] *6. Genetic analysis indicated Morgan is related to the Norwegian sub-population of killer whales. It cannot completely be excluded Morgan originates from the Icelandic sub-population of killer whales. (Andrew Foote*)."

As no real 'details' are given in the van Elk (2010) report, other than the gross findings, it cannot be ruled out that we are referring to the wrong 'Neils van Elk report' which Dr Foote cites in his undated letter. However, we are unaware of any other reports prepared by van Elk regarding Morgan.

In Dr Foote's undated letter he does provide more details of the general procedure he employed; "*The mitochondrial DNA control region and further diagnostic regions of the mitogenome were sequenced and compared with a sequence library*……", but this does not give enough detail for the test(s) to be replicated with the same protocol(s), nor provide any data to allow the results to be calibrated, authenticated or used in any way which would facilitate finding Morgans natal group.

It is known that there can be inherent problems with the techniques used to extract and analyze DNA (e.g., see Gilbert et al. 2005). Therefore, it is common practice for samples which are rare and/or valuable that the analytical results are cross checked, to ensure that no contamination or errors happen in the manipulation of samples. Keeping that in mind that it would be prudent to run Morgan's DNA with the same protocols, at multiple laboratories (or at least one other laboratory than Dr Foote's). The Free Morgan Group would have been satisified if a independent laboratory designated by the Netherlands Goverment, had been tasked to authenticate the findings.

Such authentication is one of the nine criteria listed in Gilbert et al. (2005), to ensure authenticity. They state their sixth criteria as follows
(vi) Independent replication: the generation of consistent results by

independent research groups.

True replication would involve the orginal sample being subsampled and run in independent laboraties using the same protocols. An alternative, but not quite as robust option, would be to obtain mtDNA extract from the original sample, which could then be analyised (using the same protocols that Dr Foote applied), with the final results compared between the laboratories.

In the meantime, it has been more than a year passing since Morgans capture and more than six months since it was made public that DNA matches were made to the Norwegian population of orca and that it could be possible that she was from the Icelandic stock (see page 8, van Elk, 14 Nov 2010). During this timeframe, we are unware of any intense and/or concentrated (or other) research to collect DNA samples from the orca of the Norwegian Coast, which has been conducted by, for, or in collaboration with, the Dolfinarium Harderwijk. As outlined above, these orca are likely to be the ones who are known to share acoustical calls with Morgan and a DNA sample from them may result in a match. We reiterate that if the DNA is actively withheld as the Dolfinarium Harderwijk has actively been doing, then it will not be possible to get any matches to any new data collected.

We understand and acknowledge Dr Foote's comment (in his undated letter, sumbitted by the Dolfinarium Harderwijk for their CITES application) that "*collecting data in the North Atlantic can be extremely challenging*." However, Dr Foote erroneously writes the following "*The parties that support FreeMorgan [SIC] are those which **only** have experience in the sheltered North Pacific waters...."* (our emphasis). We would like the record to show that our members have worked in small boats in the waters off Norway, Iceland, Scotland, Greenland, Svalbard/Spitsbergen, the North Sea and Russia. Additionally, members have worked in waters off New Zealand, Chile, Argentina (including the notorious Drake Passage), Australia and in the extreme conditions off Antarctica. Of note is that multiple members of the Free Morgan Group were involved with the Free Keiko Project, off Icleand and operated in the very conditions that Dr Foote is describing. We freely admit that we have limited experience working with the large North Atlantic orca population Dr Foote describes, however, we do have extensive experience working with orca, whereby, collectively we have over 135 years of research experience. We would like to note that Dr Foote himself has written that it is important to be able to "*adjust my research technique to match local conditions*...." and we know that we have the flexibilty to do so as many of us have conducted research in multiple locations studying orca (e.g., one of our members, Dr Visser, has researched orca in the waters off New Zealand, Antarctica, Britsh

Columbia, Alaska, Russia, Papua New Guinea and along the coastline of Argentina). Perhaps it is of note that Dr Foote himself started his orca research career " *in the sheltered North Pacific waters....",* whilst working with two of our members, Dr Spong and H. Simmonds and he has developed his career to now focus on the North Atlantic poplation.

Not withstanding the unprofessional withholding of Morgans DNA samples and/or profile (and acoustical and medical records which have also be refused in a similar manner), the Free Morgan Group strongly maintains that although it is highly desirable that Mogan's natal group is located, it is not the pivotal factor around which her release (or not) should be decided. Given that there are examples of individual orca not only living alone (see Visser & Hardie, 2011) but also an example of a young orca from the Norwegian population being provisioned and integrated into various pods of orca (e.g., see pages 48-49 in Stenersen & Similä (2004), attached), release should still be attempted.

It is vitally imperative to recognize that the concept of an orca only being able to survive if returned to its natal pod is based on a very specific population of orca (i.e., the Pacific Northwest population of orca known as the 'Residents') (e.g., see Ford et al. (1994) and references therein). Members of our Free Morgan Group have been conducting research on this same population since 1970 (please see the Free Morgan Website www.freemorgan.nl for the respective members websites and their extensive publication lists). Although the work conducted on this population is the backbone and template for nearly all orca work around the world and is incredibly robust and comprehensive research, it cannot be stressed enough that it is specific to that population of orca. As our knowledge of this species has grown and our framework for which we can conduct research (such as new technologies) has expanded, we now all recognize that there are 'other' orca who have different social structures, prey bases and perhaps may even be different subspecies or species. Such a change in paradigms (i.e., believing that the most studied population lives in the only way possible for orca, *cf* multiple cultures in a similar way to the multiple cultures of humans) has been possible for many scientists and indeed even for the public to accept. Nevertheless, apparently the concept of living in a social structure that is outside the framework of that found for the 'Residents' (which is basically a "arrive-by-birth-leave-by-death" scenario) seems hard to establish. In fact, for all the reports given by the experts cited in the van Elk report (2010), this was the underlying theme, based on the findings for the 'Residents'. Visser and Hardie (2011) devote a complete section of their report to explaining how such a thought process is out of context and give examples of different social structures and cultures of orca from around the world (see pages 37-

41), they show that it is possible for orca to live in mixed-species groups or alone. They point out the example of “Stumpy” the orca who moves between social groups and is cared for by various members of the population.

Foote et al (2010), in their paper entitled “Movement, site fidelity and connectivity in a top marine predator, the killer whale.” describe some individual orca from the Icelandic population (which may contain Morgan’s natal group) as having a degree of social flexibility:

Page 809 Social network analysis

“*The eight individuals sighted in both East Iceland and the Northern Isles represented nodes in a social network connecting the community following the ISS* [Icelandic Spring Spawning] *herring stock and the community predating on harbor seals around the Northeast of Scotland (Fig. 2a). The eight individuals seen in both locations traveled in at least four different sub-groups, all seen hunting seals, but these occasionally formed temporary multi-group associations and* ***swapped group members****, linking the identified Northern Isles individuals through direct association or through an intermediary*.” (our emphasis).

Taking all this into consideration invalidates the unyielding stance taken by the Dolfinarium Harderwijk that Morgan can ONLY be released if her natal group can be found.

The importance of re-introducing a female, who could potentially breed, is vital in the context of the fact that the Norwegian population orca was severely culled in the past (e.g., 143 male orca and 173 female orca (of which 107 contained fetuses) were killed during the period 1938-67 and 1978-81 (Christensen 1984). Given that Dr Foote could not eliminate that Morgan may have been from Iceland stock (i.e., “*An Icelandic origin cannot be excluded completely due to lack of available samples from Iceland*.” (van Elk, 2010)), we note that there were also 84 orca captured previously from the Icelandic population (Sigurjonsson and Leatherwood 1988).

q. Regular publications in scientific and popular literature.

Our response to this guideline is that, in the Rehabilitation and Release Plan we have outlined that we would encourage education and media coverage (e.g., see page 3 and 7), which would also include both popular and scientific literature.

It is hoped that the information supplied here will clearly illustrate why the “*Free Morgan plan shows great similarities to the plan which tired to introduce Keiko to the wild.*” (This is a direct quote from van Elk in his document supplied for the CITES

permit, in criticism of the Free Morgan Group's Rehabilitation and Release Plan). It was no mistake on our behalf that the Free Morgan Plan replicates many of the protocols implemented by the Free Keiko Plan. This was intentional, not accidental. However, there are other aspects in the van Elk document submitted for the CITES application which need to be refuted. We cover them here:

8. van Elk, when referring to the Phase 2 of the Rehabilitation and Release Plan states that there are three weaknesses (they are included here for clarity, but shortened):
   (1) fish species, hunting methods
   (2) no explanation of 'further conditioning'
   (3) medical care

These can be addressed as follows (1); every endeavor will be made to replicate Morgan's natural diet. However, although studies have been done on the diet of the orca who frequent the Norwegian waters (e.g., see Similä and Ugarte 1993; Similä, Holst et al. 1996; Nøttestad and Axelsen 1999; Domenici, Batty et al. 2000; Nøttestad and Similä 2001; Nøttestad, Fernö et al. 2002), we do not know if this particular population of orca also feeds on prey other than the herring which are abundant when they are observed off the Norwegian Coast. The diet of some populations of orca has been shown to be fairly restricted, but may be much more diverse that we so far understand. For example, the salmon eating 'Resident' orca off the coast of British Columbia and the west coast of USA, which is the longest studied population of orca in the world is described thus: "*We know that residents eat mostly salmon during the summer and fall, but their diet during winter, and the whereabouts of the whales themselves, are largely unknown*." (Ford, Ellis et al. 1994). This is more than likely to be the case for the Norwegian orca.

Page 811 Stable Isotopes

Some individuals were not associated with a single prey resource and moved between Icelandic herring grounds and the harbor seal pupping area of the Northern Isles, outside the distribution of the ISS herring stock (Jakobsson and Stefansson 1999). This is consistent with stable isotope results, which suggest that subsets of individuals within the herring- and mackerel-eating populations also persistently forage on marine mammals (Foote et al. 2009). It also reflects earlier observations of identified individuals from the Norwegian herring-eating population predating seals (Bisther and Vongraven 2001; Stenersen and Simila 2004)).

Therefore, although herring will be fed to Morgan, whenever possible, it is the concept of her foraging for live fish which is important, not only the species.

This must be kept in mind in the context that whilst in captivity at the Dolfinarium Harderwijk, Morgan has *only* been fed dead fish and squid, not any live prey.

With regards to the method by which the Norwegian orca hunt (i.e., carousel feeding, whereby they 'round up' the fish and often hit them with their tails to stun the fish, see Similä and Ugarte (1993) for details), it is unlikely that this can be replicated for Morgan in any way whilst she is being rehabilitated in the semi-natural enclosure at DeltaPark Neeltje Jans. However, it must be remembered that Morgan was taken from the wild and may already have had many opportunities to observe this behaviour being conducted by the other orca within her population. We are unsure exactly how old Morgan is, but regardless, she may have also participated in such feeding methods. It must also be taken into account, again, that there has been a young Norwegian orca, who is presumed to be motherless, who has been provisioned by other orca and is thought to survive primarly off fish which are stunned but not taken by the carouselling orca. Underwater observations of Norwegian killer whales feeding showed that a considerable number of immobilized herring were not taken by the killer whales that debilitated them, but by other orca, fish, or sea birds (Simila & Ugarte 1993). A similar situation seems to take place when Icelandic killer whales hunt herring (Simon *et al*. 2005).

That young orca is severly disabled due to a spinal injury, whilst Morgan is now healthy and although currently unfit, is in otherwise good health (van Elk, 2010). To assume that Morgan is incapable of feeding herself, without even attempting to assess that again illustrates to us how the Dolphininarium is blockading Morgans move back into the wild.

Point (2) can be addressed as follows; we purposely left out expanding our reference to 'further conditioning' as we, at that stage, believed that the Dolfinarium Harderwijk was going to release Morgan and we did not want to put negative comments in the Rehabilitation and Release Plan as they would have not been constructive nor conducive to a collaborative project. However, over the past eight months, it has become increasingly obvious that the situation has dramatically changed from that first portrayed to the public (i.e., that they were rescuing Morgan with the intent to release her). For example, the Dolfinarium Harderwijk has taught and subsequently encouraged such detrimental behaviours such as "artificial feeding conditioning" (commonly termed 'begging'), which is clearly not a behavior naturally seen in the wild (see Visser & Hardie, 2011, page 36, 45, 46). It is this type of behavior which must now be 'extinguished' and will require the 'further conditioning' which we eluded to in Phase 2 of the Rehabilitation and Release Plan.

Point (3) medical care, can be addressed as follows; Morgan has already been 'trained' to perform the following 'medical behaviours' (as listed on page 6,

Portoles & Diaz 7 June 2011, documentation submitted in application of CITES export permit for Morgan)

- Voluntary Blood
- Voluntary Rectal Temperature
- Blow hole
- Body inspection, parallel and lateral
- Mouth open an teeth control
- Sending from A to B
- Gating

Portoles and Diaz (2011) list three additional behaviours which would have to be trained; voluntary weight, obtaining voluntary urine samples and the use of the pool deck.

Given that all these other 'medical behaviours' have already been trained for, apparently by the Dolfinarium Harderwijk, then, in association with close monitoring and daily husbandry checks, we will provide Morgan with appropriate medical attention. We anticipate installing a 'beaching platform' weighing scale, which may possibly be able to be raised above water level. We would plan to include a section of the enclosure which can be netted off for medical emergencies and this option has already been discussed with the management of DeltaPark Neeltje Jans.

There is a course-sand beach along the southern foreshore of the enclosure at DeltaPark Neeltje Jans. This beach is gently sloping and Morgan will be encouraged to utilize it as a 'rubbing' area, which will not only familiarize her with shallow waters, should we be required to bring her into that area, but also allow her to self-massage as the orca are known to do at 'rubbing beach' at Robson Bight, British Columbia (Ford et al, 1994). Additionally, by familiarizing her with such shallow waters she can be taught to extract herself off the beach as has been done for orca in the waters around New Zealand (Visser, pers. comm., to Free Morgan Group).

9. van Elk, when referring to the Phase 3 of the Rehabilitation and Release Plan states that there are three weaknesses (they are included here for clarity, but shortened):

   (1) social structure, fish eaters
   (2) boat following, behavoiur
   (3) boat following, fish hunting

   These can be addressed as follows (1); the social structure of orca has been outlined in this document (see page 16) and in the Visser & Hardie (2011) report. However we must point out that van Elk is under the false impression that "only cetacean-feeding orca are less rigid [in their social structure]". This is outdated and erroneous information. Populations of orca who feed on prey other than cetaceans (e.g., sharks, rays and sealions) have all been

recognized with fission-fusion societies. For example, Visser (2000) used an 'association indicies plot' to illustrate the complex and fluid nature of some individuals social structure in the waters off New Zealand. That figure is reproduced here for clarity.

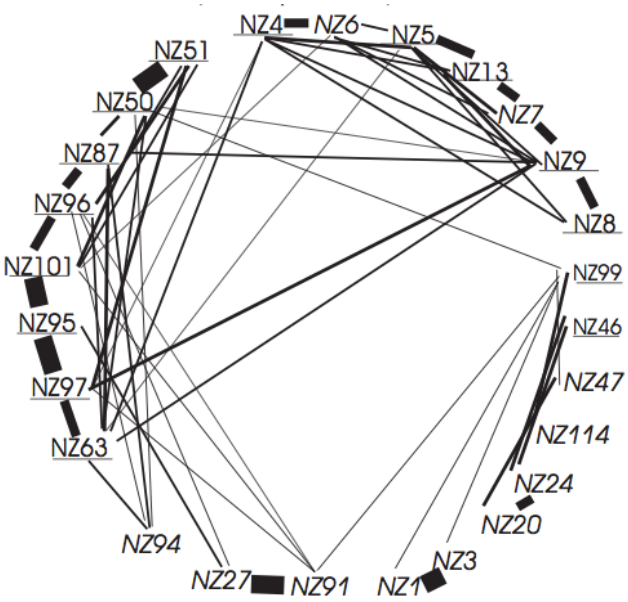

Figure 1.
'Association indicies plot' of 26 New Zealand orca.

The numbers represent individual's and the thickness of the lines joining the individuals indicates the amount of time they have been observed together (whereby a thick line denotes more time than a thin line).

An absence of a line joining individuals indicates the animals have not been observed together. (extracted from Visser 2000).

Point (2) (boat following behavior) can be addressed in that we are aware of the risks associated with teaching Morgan to follow a boat (i.e., subsequent to her release, Morgan will continue to follow boats and beg for food). We will teach her to follow one particular boat to mitigate these risks. Given that Morgan has spent time in the wild before her capture it is highly likely that she had encountered boats in the past and not associated them with food. A young orca named Springer, who was reunited with her family group followed boats for a while, but this behavior was extinguished after she had more 'rewarding' events in her life (social interactions with orca and foraging for her own food).

van Elk is right to point out that there were issues with both Luna (another lone orca) and Keiko, with regards to boats. Luna, was a young solitary male orca in the waters of Vancouver Island, who became notorious when he began 'playing' with boats and breaking items such as rudders and oars. However, Luna was totally alone, in a very unique situation as he had arrived into the area with his much older uncle who died in the large fijordlike system of Nootka Sound. Luna did not appear to want to leave the area where his uncle died and remained there, alone for years. He was deprived of social contact with other orca and negotiations were underway to return him to his family, when he was hit by a boat and killed. The primary reason that Luna was not moved sooner was human 'competition' to 'keep' him – similar in many ways to the current situation with Morgan. Members of the Free Morgan Group had been asked by the Canadian Government to 'observe Luna, devise a plan for

repatriation and facilitate the execution of the repatriation'. Observations had been conducted and it was noted that it was possible to redirect Luna's attention away from boats and the plan had been formulated. The final step (repatriation) was delayed because of human politics and as a result Luna died by being run over by a boat.

In the case of Keiko, he was taught to follow a boat to ensure that he built up his physical fitness to enable him to transition from a small tank(s) which he had been captive in for nearly two decades and into the open ocean where he might have to travel 100's of kilometers in just a day. Keiko responded well to the boat-follows, actively 'meeting' the 'walk' boat at the gate. He was taken on 'walks' which covered 100's of kilometers, staying out overnight and in company of other orca. At times he would swim very close to the boat and at other times he would 'wander off' – which was encouraged. We are aware that Keiko, after having been out at sea, alone, for months, began following boats again. It would be inappropriate to speculate why he began following boats again, but suffice it to say that we are aware of the situation as members of the Free Morgan Group (as pointed out in Points 1-3) were involved with the Free Keiko Project. Visser & Hardie (2010) have suggested that a high-profile media campaign prior to her release, which encompasses strict guidelines on how (not) to interact with Morgan, would be of immense benefit to reduce the likelihood of such events happening.

One positive aspect to consider is that should Morgan seek out boats, it may be because she is in need of food or social contact and we would be alerted to the situation (if we were not already aware of it via the satellite tag she would have and through direct observations). Such re-intervention is part of the protocols we outlined in the Rehabilitation and Release Plan and they are also one of the points raised by the IUCN Re-introduction Guidelines.

Unfortunately, Dolfinarium Harderwijk has exacerbated the situation of Morgan perhaps interacting negatively with boats, by not only teaching Morgan such behaviors as 'begging' but continuing on with, *and* actively encouraging them. This was despite the Dolfinarium Harderwijk's previous experience with rehabilitation and release of 'toothed cetaceans' (page 3, van Elk, 2010) and their obvious understanding that such issues could arise (e.g. see van Elks comment in his CITES application document, raising these very issues).

In light of the fact that the Dolfinarium Harderwijk knew that there were parties interested in rehabilitating and releasing Morgan, training such behaviours was irresponsible and clearly indicates that they, themselves, had no intention of releasing her back into the wild. This is in direct violation of their public statements and suggests that they may have been duplicitous from the beginning. It has been proposed that the training of such behaviors (and the negligence illustrated by the lack of environmental enrichment provided to Morgan) may have been deliberately conducted as a way to modify Morgans

behavior to the extent that it would prevent Morgan's release (see Visser & Hardie, 2011). To further illustrate this point, it should be noted that Portoles and Diaz (2011) have been led to believe that Morgan is 'imprinted' onto her human trainers at the Dolfinarium Harderwijk. It is not clear from the document if Portoles or Diaz have ever seen Morgan, but regardless, 'imprinting' does **not** occur for ceteceans, as far as we can establish (see Point 5, in the Free Morgan Group's document entitled "RESPONSE TO THE INTRODUCTION PLAN OF A RESCUED *Orcinus orca* INDIVIDUAL IN THE ORCA OCEAN GROUP", filed as part of the refuting evidence as to why a CITES permit should not be issued to export Morgan). From this fact we can only surmise that the staff from the Dolfinarium Harderwijk had conveyed such an outrageous suggestion to attempt to delude not only Portoles and Diaz, but also the public (see point 9, page 11, van Elk (2010) report, freely available from the Dolfinarium Harderwijk website), many of who now believe that Morgan is totally 'reliant' and cannot survive without her human trainers.

There is no denying that Morgan may have become 'attached' to certain people through the fact that she was hand-fed and deprived of nearly all social contact (of people and other cetaceans) (e.g., see Visser & Terry, 2011). Although we are not attempting to place human emotions or interpretations onto Morgan's situation, it may help the reader to understand how Morgan, despite emotional neglect, becomes attached to her trainers if the human psychology term "Stockholm Syndrome" is applied. This term describes a real paradoxical psychological phenomenon wherein hostages express empathy and have positive feelings towards their captors. The victims essentially mistake a lack of abuse from their captors, as an act of kindness. We reiterate here that we are not implying that Morgan is exhibiting Stockholm Syndrome, but rather used the term to illustrate the point that Morgan may have become attached to her trainers. And, again, we reiterate that such attachment is NOT imprinting and therefore is not an issue for Morgan with regards to her release.

Once the initial phase of her recovery was completed, most of the feeding by hand should have been stopped *immediately*. If the Dolfinarium Harderwijk had any real intentions of rehabilitating and releasing Morgan, she should have been fed in such a way that her contact with humans was not a focus of food. This is feasible through 'remote' methods such as tubes to deliver the food underwater (the human hand is then not associated with the fish delivery, but the tube is), random delivery systems (such as 'sling shots' which can propel the (dead) fish further than throwing (such devices were used with Keiko) as these not only disassociate the human element from the feeding process, the encourage the animal to investigate its enclosure and search for food which can appear randomly) and automated feeders set to deliver fish when there were no humans present (thereby completely removing any association of humans with food as there are no humans around. This also means that during the hours when the park is 'closed' Morgan would still be

receiving mental stimulation). Not one of these methods (nor even the basic option of delivering live fish into the tank) has been utilized for Morgan. This was also the case even before the Dolfinarium Harderwijk apparently established her genetic or acoustic profile and attempted to 'locate' her family (i.e., the timeline shows that this inappropriate training was begun well before they could wrongly assumed that she couldn't be released). Again, this clearly illustrates that the Dolfinarium Harderwijk had ulterior motives (i.e., they had no intention of releasing her).

We are aware that it is important for the trainers to maintain control over captive marine mammals, especially an animal which has just undergone such extensive recuperation and who will require regular husbandry checks. However it would still have been possible to *substantially reduce* the amount of direct feeding of Morgan and begin to disassociate food from humans.

Regardless of all of this, van Elk does not seem to understand the *WHY* of training Morgan to follow the boat. His extensive comment going into details about the winter range of herring and their mating at depths of 150m suggests that he thinks we wish to follow the herring, rather than the orca who themselves follow the herring. It would be logical to mention here that although the boat-follows are intended to increase Morgan's fitness and to lead her to orca, there is no reason that herring can't be followed if they are encountered. Orca are known to be able to dive to at least 264 m (Baird et al. 2005). Diving to depth is not restricted to older animals, as a three year old male orca has been recorded diving to 148 m and a three year old female to 135 m (Baird et al. 2005). It is common knowledge that cetaceans can communicate over long distances. Given that Morgan has been vocalizing loudly and excessively (Visser & Hardie, 2011), it is hoped that such calls will attract the wild orca frequenting the area around the site of her proposed sea-pen (in the waters of Norway). Likewise, when out on a boat-follow, it is possible that her calls would attract other orca. Conversely, Morgan may hear orca calling and be able to locate them herself, without our assistance.

Morgan's fitness has to be increased for obvious reasons, but it may help to put into perspective the substantial distances (within short timeframes) which individual orca are known to travel (*e.g.,* 71.8 km in 24 hours (the orca known as 'Keiko', from *Free Willy*), Simon et al. (2009); 124 km in 17 hours, Lowry et al. (1987); 111 km in 24 hr, Visser (1999); 160 km in 24 hr, Baird (2000); 3,267 km within 77 days, Dahlheim et al. (2008).

van Elk also suggests that we, as humans, would attempt to "*imitate*" (his word) the carousel hunting methods employed by the Norwegian orca. That such a comment was even made again illustrates that van Elk has little grasp of the situation and is out of his depth in terms of the Rehabilitation process and the structure of the plan that we proposed.

In continuing to attempt to discredit the Release and Rehabilitation Plan of the Free Morgan Group, van Elk then goes on to state that "*Morgan hasn't even learned how to hunt and survive*." We would like to give van Elk the benefit of the doubt and assume that he bases such a presumptuous statement on the fact that Morgan was found emaciated and dehydrated. Visser & Hardie (2011) compiled a short section relating to the fact that Morgan was found ill and separated from other orca. They state that it will likely never be known why Morgan was found in such a manner, but do outline three main categories of circumstances under which the event *may* have occurred (1) Voluntary separation (*e.g.,* Morgan left her family by choice). (2) Accidental separation (*e.g.,* Morgan got separated from her family and/or got 'lost' and subsequently couldn't relocate her family) and (3) Forced separation (*e.g.,* members of Morgans' family drove her out of the group, or perhaps her family group was chased by hunters and Morgan was separated and/or individuals were killed in her group and Morgan fled). There may be other factors which have not been considered, but which are outside the scope of this document.

For whatever reason Morgan was separated from her group it would be presumptuous to assume that because she was found in the Wadden Sea emaciated and alone that it was her 'fault'. Other anthropogenic factors could easily be implicated. For instance, it is common knowledge that many areas of the worlds oceans are under threat. The area of the Wadden Sea is no exception, with flora and fauna collapses (e.g, see Beukema & Dekker (2005), Dankers, et al (1992), Smit, et al (1998), Dankers, et al (1992)). Given the recognized issues in the Wadden Sea, it may not have been so much a matter that Morgan was not able to hunt, but that there was very little, if anything, left *for* her to hunt. van Elk reports in his 2010 report that Morgan was defecating algae, which indicates that she was at least attempting to sustain herself through eating, however inappropriately. Likewise, van Elk (2010) reports that Morgan had begun eating (dead) fish within an hour of them being presented to her. This is in direct contrast to some captive cetaceans which may refuse food for days or even weeks (Griffin and Goldsberry 1968). van Elk (2010) states that Morgan had a "ravenous" appetite and that she was eating 32.5 kg of food per day, within seven days (see page 5). This hardly gives the impression of an animal that doesn't recognize fish as a food source. In comparison, a severely emaciated young orca, found off the coast of New Zealand in 1996, was presented with whole fish and fish fillets and although it mouthed the items, it did not consume them. That particular orca was thought to come from a population which feds primarily on elasmobranches (rays and sharks) and not on fish (Visser, pers. comm. to Free Morgan Group).

Once inside the Wadden Sea (no matter the reason she arrived there in the first place), Morgan may easily have become disorientated due to the relatively enclosed waterways which are subject to extreme tidal heights, limited egress points and high vessel traffic. All of these features, as well as others such as acoustical pollution, may have made it difficult for Morgan to not only locate food, but to effectively hunt. Again, we will never know the circumstances which resulted in Morgan being

rescued, but during the Rehabilitation and Release Plan we intend to monitor her progress with her hunting skills and weight gain to ensure that she is in fact able to hunt sufficient enough to sustain her growing body.

Again, unfortunately it must be brought to the attention of the Governing Body that the Dolfinarium Harderwijk has attempted to forestall or even totally prevent Morgan's release through the neglect to provide Morgan with the opportunity to enhance her feeding skills.

Although van Elk returns at this point in his document to again mention the Free Keiko project, he appears to not have read, or perhaps comprehended the published paper by Simon et al (2009) entitled "From captivity to the wild and back: An attempt to release Keiko the killer whale", as van Elk states that the reason that he (van Elk) considers that the release of Keiko was a failure was because his natal group couldn't be found. Simon et al. (2009), however, clearly state that "*Keiko was indeed a poor candidate for release, due to the early age of his capture, long history of captivity, prolonged lack of contact with conspecifics, and strong bonds with humans.*" van Elk goes on to cite a quote from Paul Spong (one of the Free Morgan Group members), on the website Keiko.com, and states that Spong believes that Keiko needed direct contact with his family members. However, what van Elk fails to do is recognize that the rest of the paragraph clearly states that "*However, this does not mean that it could not happen, given the appropriate circumstances*." Spong then goes on to describe the case of Springer and her successful reintegration.

However, should van Elk be right and the case of Morgans release is highly dependent on finding her family (but please note that the Free Morgan Group strongly contests that concept, and does not believe it is the case), then the Dolfinarium Harderwijk has been grossly negligent in not actively pursuing the raw data (i.e., biopsy samples or acoustical recordings) of the orca which are currently known to be in the waters of Norway. Should they not have the money or experience to conduct such research, we the Free Morgan Group would have been happy to have assisted in any way possible and in fact offered assistance to contact researchers in the field and assist with data collection ourselves (discussed in a meeting in August between the Dolfinarium Harderwijk (Foppen (Director), van Plateringen (PR) and three members of the Free Morgan Group (Pozzato, Pijpelink, van Twillert)).

Following this section, van Elk then draws on the findings of the Experts the Dolfinarium Harderwijk commissioned to prepared reports. It does appear, from the statement by Christina Lockyear (page 22, van Elk, 2010) that the Experts were supplied with a one page (10 bullet points) document (perhaps with a reference list attached) entitled "Morgan's case specific information" (page 11, van Elk, 2010). We are aware, that despite our utmost efforts to get the Free Morgan Rehabilitation and Release Plan distributed to these Seven Experts (through the Dolfinarium Harderwijk), that it was not submitted, nor was any other proposals for rehabilitation and/or release.

The Free Morgan Group was perplexed and dismayed by the shortness and simplicity of at least some of the Expert Opinions submitted to the Dolfinarium Harderwijk (see van Elk (2010) report extracts, attached). Given the gravity of the importance of their opinion, in terms of the fate of Morgan, more details may have been pertinent. However, we concede that such brevity might be due to lack of documentation presented to the "Seven Experts" by the Dolfinarium Harderwijk (i.e., the one page, 10 bullet points).

We could have expected the Dolfinarium Harderwijk to have sent at least the following information to the "Seven Experts" who were commissioned to present their opinions on Morgans suitability for release;

- Full report on the capture and transport including location of capture, timeframes for transport etc
- Full body measurements at capture and at frequent intervals (e.g., every 2 months), including weights with a clear indication of the rate and amount she has recovered
- Full medical records at time of capture, including tests conducted & results and triage administered
- Full medical records since her capture, including full disclosure of medications administered, dosages and durations, nutrients and supplements (along with their dosages and durations)
- Full original report from Dr Foote regarding results of the DNA analysis
- Full original report from Filipa Samara regarding the acoustical matches
- Full ethogram (behavioural repertoire) of Morgans behaviours in captivity
- Full photographic identification (photo ID images) of Morgan, including eye-patches, saddle-patches, dorsal fin (both sides), gape and mouth-line and under-fluke pigmentation and any other distinguishing marks, pigmentation, scars or noticeable features.
- List of behaviours Morgan has been trained for (e.g., medical behaviours)
- Logbook/training records of the development of Morgan's behaviour as she recovered – i.e., the record that shows what behaviours were taught when during her recovery, how she responded to them and what the overall impressions were for each training session
- Any proposals for rehabilitation and or release
- Any proposal or tentative agreements with other facilities to house Morgan long term
- Comprehensive documentation (photo and video) of Morgans body conditions
- Complete food consumption records, including weights, types of food and her preferences, dislikes and how the food was distributed (e.g., how many sessions per day, quantity at each session, food not consumed etc)
- Selection of videos (or links to) showing body postures, swimming coordination, alertness or lethargic behaviours (or both if they either is prevalent), sleeping behavior, response to stimuli such as novel items, food, trainers, sound etc. Videos should also include husbandry training and

procedures. It would be relevant to see videos of Morgans reaction to the public and the overall conditions that she is held in

- Current facility capacity and dimensions
- Destination facilities capacity and dimensions
- Timeline and plan for captivity (should that be decided), i.e., when will she be moved to a larger tank
- Timeline and plan for rehabilitation (should that be decided), i.e., when will she be moved to a larger tank
- Who Dolfinarium Harderwijk had contacted in terms of wild orca research in Morgan's natal area
- An invitation to observe Morgan first-hand, as this can provide valuable information to form an educated opinion as to her suitability for release or not

If the one page (10 bullets) information is all that was supplied to the "Seven Experts" then it could be described as unacceptable and totally insufficient (or at the very least severely biased) documentation which the Dolfinarium Harderwijk supplied. We wish to clarify that the Free Morgan Group respects the "Seven Experts" and do not in any way wish to discredit them. However, we would question why the Dolfinarium Harderwijk, who has a commercial interest in Morgan, was permitted to appoint the "Seven Experts" and, that the Dolfinarium Harderwijk was, presumably, able to 'filter' the information which was supplied to them.

van Elk includes two photographs as 'evidence' that Morgan's body weight can't be distinguished, despite a 20% difference in body weight. These photos do illustrate the point well and it is very clear to us that once Morgan is released permanently, no husbandry procedures will take place. Therefore her health and diet will not be monitored closely from this point onwards. However, from her behavior, her reactions and her activities a general indication of her overall health will be apparent. Obviously, we would adhere to the IUCN Re-introduction Guidelines and the Contingency Plans (which were formulated with the Guidelines in mind), to repatriate Morgan back into human care if required.

It is disheartening to read that van Elk sees the lessons learned from the time Keiko spent in the wild and during his whole rehabilitation process, a failure. We do not attempt to deny that there were certain aspects of the Free Keiko Project that could have been improved or done differently with the knowledge we now possess. Yet, with that gained experience, van Elk still suggests that we should not base our Release and Rehabilitation Plan for Morgan on the Free Keiko Project. We have outlined extensively in the points above, why we feel that it is prudent to base the plan for Morgan on a method that was successful at many levels, and which can be further improved.

Although van Elk sees the Free Morgan group as 'blinded by idealism', we see our tenacity as a strong focus that maintains an open mind to the possibilities of trying and giving her a chance to return to her family, rather than refusing to even help and

keeping her in captivity. van Elk suggests that we would rather see Morgan starving and in isolation/loneliness than "*accompanied and taken well care of in an aquarium*". Yet it is these very aspects of her life that van Elk says will be provided for in the Dolfinarium Harderwijk which Visser & Hardie (2011) call into question – that Morgan is left alone for extended periods of the day (and presumably the night), that she is ill-provided for in terms of mental and physical stimulation and that she has, against her will, been deprived of social contact with other cetaceans. Phase 3 (return to home range) and Phase 4 (post-release monitoring) of the Rehabilitation and Release Plan clearly indicate that should Morgan become distressed that assistance would be given to her. The members of the Free Morgan Group have Morgan's welfare as the utmost priority in their minds and it is for that very reason that they do not wish her to be subjected to the demeaning and inappropriate conditions which life in captivity provides.

Dr Marino, cited in Visser & Hardie (2011) eloquently states the following;
"…. *modern husbandry techniques are very sophisticated, but this isn't the same as being well-cared for, and it doesn't mitigate the fact that these animals cannot thrive in captivity. Surviving for a certain amount of time is not the same as thriving, and the mortality statistics show this conclusively. Dolphins and whales live only a fraction of their natural life spans in captivity. So if they're being so "well-cared for," what is killing them?"*

van Elk cites Dr Morton as saying "*More than mating, more than food, more than home territories it is family around which a killer whale's world revolves*." and we would applaud him for pointing this out as it is exactly the mentality we would like to see truly reflected in the motivation of the Dolfinarium Harderwijk. By keeping Morgan in captivity they are guaranteeing that she will never see her family again.

CONCLUSION

Notwithstanding all the welfare issues raised in the report by Visser & Hardie (2011), we, the Free Morgan Group must regrettably agree with their findings as, based on the now overwhelming evidence contained in this document, along with our accompanying documents (and the Visser & Hardie (2011) report), that Morgan "…… *is being retained in captivity and not being released due to her intrinsic and/or fiscal value.*" We add here that part of that 'value' is obviously linked to her capacity for breeding and to introduce new DNA into the extremely limited gene pool of captive orcas.

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Suggestions for returning "*Morgan*" the orca (killer whale) to a natural life in the ocean

www.freemorgan.nl

Executive Summary

*"*Morgan*" is a young female orca (killer whale), probably 3-4 years old, who was rescued on 23 June, 2010, from the Wadden Sea (an intertidal zone in the southeastern North Sea, off the coast of the Netherlands). She is currently at the "*Dolfinarium Harderwijk*", in the Netherlands. Now, four months past her rescue, concerns are arising about* Morgan's *extended confinement in a small concrete tank and the impact this could have on her ability to return to the wild. The suggestions in this proposal are intended to assist Dutch authorities and the* Dolfinarium Harderwijk *in providing an opportunity for* Morgan *to return to the ocean and her community and in doing so contribute to orca conservation and scientific knowledge.*

The development of this rehabilitation and relocation proposal has been a cooperative project by a number of regional and international partners; including researchers, conservation groups, and animal welfare advocates, who all share the goal of returning Morgan *to a free life in the ocean, preferably where her extended family may reunite with her.*

We suggest that a Steering Committee be appointed to oversee the "Release Morgan" project. The proposal in this document is intended to assist the Government in its decisions and actions. This proposed Morgan Release Plan incorporates four main Phases, each with a set of Contingency Plans. The continuation on from any one Phase to the next is reliant on fulfilment of criteria which will be established by the Steering Committee. The health and well being of Morgan *is paramount for this plan and she will be continually monitored including during Post-Release.*

Photo of Morgan © Jenny van Twillert

Background and Overview Information

The basis of this strategy is drawn from some of the participants' prior work and experience with three other orca rehabilitation efforts; 'Springer', a two-year old orca orphan found alone near Seattle Washington, USA in 2002; 'Luna' another two-year old orca, discovered alone in Nootka Sound, British Columbia, Canada in 2001; and 'Keiko' a young orca captured at the age of two near Iceland, who lived for twenty years in marine parks before an attempt was made during 1999-2003 to reintroduce and release him back into the ocean near Iceland. Of the three previous efforts, Keiko was released into the wild (albeit short-term), but subsequently became re-affiliated with humans and then died of pneumonia; Luna, who's relocation program was not implemented, died when struck by a vessel's propeller; while Springer survived, and is now fully incorporated into her wild family, which ranges through the central coast of British Columbia. In each effort, political and economic factors played significant roles, but valuable scientific information was gained, adding to our collective body of knowledge and helping us improve our ability to develop comprehensive and successful orca whale/cetacean rehabilitation and reintroduction programs world-wide.

This proposal seeks to benefit from the opportunity we have been offered with Morgan to increase our collective knowledge about rehabilitating wild cetaceans and improve our capability to conduct another successful reintroduction of a young orca to her home waters in the wild. In light of global environmental climate and ecosystems changes, progressing the science of successful cetacean reintroduction programs is becoming more and more crucial. In some cases, critical biodiversity exists in very isolated cetacean populations (e.g., St. Lawrence and Cook Inlet beluga, Southern Resident orca, Yangtze River baiji, Mexico's vaquita, Indus River dolphin, etc.) and our ability to implement a successful reintroduction of any stranded or injured cetaceans – or the ability to introduce captive-held/captive-bred individuals back into these wild populations – could determine whether these unique species become extinct or not. The circumstances presented to us with a large delphinid like Morgan represents a tremendous opportunity for researchers, aquariums, governments and others to advance our global and collective knowledge as well as our abilities to conserve and strengthen wild populations of depleted cetaceans.

At the threshold of an era when many large cetacean species and other mammals are facing extirpation and/or extinction, every opportunity to learn more about population rehabilitation and reintroduction is significant and should be taken. Despite different perspectives or approaches to conservation, one element that is universal is our mutual agreement to protect global biodiversity and to ensure that healthy, sustainable populations of cetaceans continue to exist in our world's oceans and rivers. This proposal to rehabilitate and reintroduce Morgan back to her open-water home fulfills both moral and ecological imperatives; we cannot allow this opportunity to be lost as we race to learn and improve our knowledge of the science of cetacean reintroduction. With cooperation and common vision, we can turn this tragic circumstance of Morgan's into a progressive learning opportunity and move towards improving the chances of survival for all whale and dolphin populations inhabiting the oceans of our planet.

GOAL

Reintroduce Morgan back to the ocean environment, her home range and her orca community.

Whether or not Morgan forms long-term social affiliations with other orca, her release should be considered a success if she is able to survive in the ocean, ideally without further human intervention.

Benefits of Release Project Effort

- For Morgan; provide an opportunity to resume her life in the ocean.
- For future whale rehabilitation efforts; the rescue and re-introduction of Morgan will help develop better planning and preparation techniques.
- For the public; engage and create awareness and concern for the protection of orca communities in the North Atlantic and around the world.
- For the Dolfinarium Harderwijk and other stakeholders involved; provide positive feedback for their contributions.
- For science & conservation; provide data for long-term collaborative studies of the social organization of Northern Atlantic orca communities.

Contributions from Non-Government Organisation (NGO) Groups

The Expert Panel and associated NGOs thank and congratulate Dutch authorities and Dolfinarium Harderwijk for their decision to rescue Morgan, and applaud the good and timely effort made by the Dolfinarium in helping Morgan regain her health. The Dolfinarium Harderwijk readily made their facility and the expertise of their staff available to Morgan. They consulted with many experts when Morgan was found alone and in poor condition in the Wadden Sea in June 2010. The welfare of Morgan is paramount to the Dolfinarium Harderwijk, the Expert Panel and the general public. The Expert Panel will give their full support and co-operation to Dutch authorities and the Dolfinarium Harderwijk, to help obtain a positive outcome for Morgan.

The Expert Panel will use their extensive networks worldwide to:

- Encourage positive public awareness by holding a public forum to discuss Morgan and the plan to re-introduce her back to her natural home.
- Help raise funds for the project.
- Help with planning, logistics and documentation.

Pre Release
Prior to release, to ensure Morgan's successful reintroduction, every effort should be made regarding the following,:

- Establish, if possible, Morgan's prey preference: this will assist in understanding a) which population she might come from; b) her nutritional needs; c) her social dependencies.
- DNA and other pertinent analyses to determine any possible comparisons with known populations.
- Acoustic analysis of her vocalizations to determine comparison with known North Atlantic orca communities.
- A complete digital photographic record of her body, dorsal fin, eye patches, saddle patches, flukes, body and skin markings to enable subsequent matches to be made.
- Morgan's progress and readiness would be monitored and assessed by marine mammal veterinarians and experts experienced in wild orca behaviour and research.

<u>Phase 1</u>. Captivity: Initial Return to Health at the Dolfinarium Harderwijk
When first found in the Wadden Sea, Morgan was solitary, in poor health and underweight. Since her rescue in June 2010, Morgan has been under the care of the Dolfinarium Harderwijk in Harderwijk, the Netherlands. The Dolfinarium Harderwijk medical staff and trainers have helped Morgan regain weight as well as treated her various physical ailments. By all accounts, Morgan is now physically much improved and Phase 1 is almost complete.

Phase 1 Contingency:
If Morgan's health deteriorates rapidly during this phase, she should remain under care at the Dolfinarium Harderwijk until she recovers.

<u>Phase 2</u>. Captivity and Extended Physical Rehabilitation:
As soon as the Dolfinarium Harderwijk veterinary staff determines that Morgan is sufficiently healthy for transport, she would be moved to an ocean enclosure. The goal, during and immediately after transport, will be to provide Morgan with as much continuity as possible. Given the strong social bonding of orca, her veterinarian(s) and other support staff should accompany her during all stages of the transport and should remain with her as long as possible after her arrival.

- Morgan would undergo further physical rehabilitation and re-adaption to a more natural ocean environment;
- Exposure to people (visitors) would be controlled & reduced;
- Morgan would be re-introduced to live prey;
- Morgan's physical health and well being would continue to be assessed;
- Morgan would undergo further reconditioning regimes to aid her survival in the ocean;

DeltaPark Neeltje Jans Location and Details

We suggest that a suitable location for Phase 2 is DeltaPark Neeltje Jans, located on the Netherlands coast approximately midway between Antwerp (Belgium) and Rotterdam (the Netherlands). This site has;

- Semi-natural sea pens;
- Easy access for staff and medical care;
- Ample opportunity to test survival skills;
- DeltaPark management has already expressed willingness to participate.

The DeltaPark Neeltje Jans is a water park facility with a number of artificial embayment's / harbours. The name Neeltje Jans comes from the big sand bar in front of the facility, of the same name. The Neeltje Jans area is a natural reserve and boat traffic is prohibited on both sides of the facility. Two storm surge barriers, constructed to avoid flooding, are normally open but can be closed if required.

The deeper channels surrounding the facility, which are created by strong currents and tidal movement, have an average depth of approx 25m. The artificial embayment's / harbours (Figure 2) range to a depth of 5 m, which is deeper than the tank Morgan is presently held in. These enclosures are also bigger than the current tank Morgan is held in, as Enclosure #1 is approximately 200x150m, Enclosure #2 and #3 each approximately 100x200m.

Figure 1. Overview of the Neelje Jans area, depicting outlying sandbar.

Figure 2. Close-up of the DeltaPark Neelje Jans enclosures. The area of the DeltaPark facility is ideal for conducting a wide range of tests to ensure that Morgan has necessary survival skills and to further increase her physical strength and endurance.

DeltaPark Neeltje Jans Benefits During Phase 2.

- There is an opportunity for food to be delivered by a variety of methods and in a variety of areas around the pens to stimulate Morgan to search for food.
- Cameras (both underwater and above-water) as well as hydrophones, could be set up to provide 24 hr observations and data collection.
- During Phase 2, Morgan could be trained to respond to an acoustic recall-signal in preparation of Phase 3.

Phase 2 Contingency:

In the unlikely event that Morgan's health deteriorates rapidly during this phase, given the nature of the facilities at Delta Park, intensive care could be easily implemented.

Phase 3. Return to Home Range

Determination of Morgan's home range and the community she comes from may take some time, or it may be a relatively simple matter aided by existing DNA, photographic and/or acoustic data.

Given the uncertainty of being able to determine the exact home-range of Morgan, it may still be feasible to implement Phase 3 by relocating Morgan to an area in which wild orcas are known to frequent. Given the social flexibility of some populations of orcas, even non-related groups may accept her. Alternatively, Morgan could be relocated to an area where opportunities exist for her to forage on her own.

Once Morgan's probable home range has been determined, or if an alternate location where she could forage successfully is identified:

- Morgan would be moved to a temporary Sea-Pen.
- At this facility, Morgan would finish the training needed to re-acclimatize her to the ocean environment, including demonstrating that she is able to forage successfully and if possible, reconnecting her with wild orca.

As per the Phase 2 section, Morgan's veterinarian(s) and other support staff should accompany her during all stages of the transport. They should remain with her as long as possible after her arrival in her home range.

After Morgan has adapted to her Sea-Pen, training procedures for recall and "boat-follow" exercises may begin, as recommended by the Steering Committee:

Step 1. Morgan would receive additional training to come to the source of an acoustic signal, while remaining within the Sea-Pen.
Step 2: Signal training would continue outside her Sea-Pen, preferably in a larger area that has been temporarily netted off.
Step 3: Extended boat-follow exercises ("walks"): Morgan would be taken out on boat-follow excursions to an area where orca are known to forage and travel. Supplementary food would be available if needed.

Prior to the extended boat-follow exercises:

- Photographs of Morgan would be distributed throughout the communities closest to her release and to boaters, fishers etc in the area. As well, broadcasts of information would occur on local VHF radio frequencies and public radio stations. These initiatives should help create an effective sightings network. Informants will be requested to report Morgan's location to the appropriate persons or organization.
- Morgan would have a radio/satellite tag attached to her dorsal fin so she can be located continuously and to provide direct information about her behaviour (depth of dives, time spent underwater, area visited or preferred).

- Morgan would be trained to respond to a long-range signal during preliminary short walks. The walks would then be gradually extended until she is able to be out for long periods, eventually overnight.
- Broadcasts of Morgan's vocalizations into the surrounding waterways would occur, to potentially attract other orcas to her locale.

If, during walks, Morgan makes contact and associates with free ranging orca(s) for an extended time, then the boat should initially remain in the area to provide Morgan with appropriate support, if she requires any. Observers would continue to monitor Morgan and the other orca(s) through photographs, video and acoustic recordings. As the encounter with the wild orca(s) progresses, the boat could remain stationary, therefore by default creating greater distance from the orca(s). Eventually the boat would leave the area without sounding the recall signal.

Morgan's location would continue to be tracked via the radio/satellite tag and over-flights could determine if she remains in the company of other orca(s). If during the over-flights Morgan is found alone, her situation would be assessed and a decision made as to whether to sound the recall signal. If it is decided that Morgan should return to the Sea-Pen, the condition of her health would be assessed. If Morgan is alone when located and appears to be healthy and behaving normally, a decision would be made as to whether it is appropriate to leave Morgan and simply track her movements. It is recognized that the process of reintroducing Morgan to a "normal" life in the ocean might take several attempts.

We also suggest consideration of a "soft release" approach as an alternative. Soft-release would involve providing a permanent opening in the perimeter fence of the Sea-Pen whilst maintaining the infrastructure of the facility and care. Morgan would continue to be cared for until she ventured out on her own. As in the above procedure, a radio/satellite tag attached to her dorsal fin would enable tracking of her movements, behaviour and her health status. In this situation, the option for Morgan to return to the Sea-Pen would remain for an extended time. Returns would be at the discretion of Morgan, unless there are indications that she is in distress, such as not being able to forage successfully, or in need of intervention for health reasons.

Phase 3 Contingency:
If Morgan demonstrates an inability to forage successfully and shows weight loss or disorientation, options include recalling her to the Sea-Pen where she would receive longer-term care and additional training. If Morgan meets other orca(s) and is unable to bond with them, one possibility would be to leave her on her own and simply track her via radio and satellite, provided she demonstrates an ability to forage successfully. She could also be recalled to the Sea-Pen where provisioning would be available to her, whilst allowing her to leave and return.

In the event that all systems and procedures for monitoring and recalling Morgan during "walks" and after her release should fail, over-flights designed to locate her whereabouts may be needed.

Phase 4. Post-Release Monitoring

If re-introduction proves successful, post-release monitoring of Morgan will be essential, not only for Morgan, but for gathering information about her and the North Atlantic orca population.

With an attached radio/satellite tag it should be possible to track Morgan's movements over considerable time and distance. Whenever possible, boat based data collection, with trained observers would provide additional detailed information about her activities. Each reliable report from the public observer network would be followed-up by trained personnel. The records of sightings and encounters would contribute to a "Morgan" Database.

Following Morgan's successful release, the "Morgan" Database will be frequently updated and made accessible on the Internet, so her story can be followed by internet users and stakeholders around the world.

Project Management: Steering Committee

Tasked with overall direction of the project, The Steering Committee should include a Project Manager appointed by the Dutch Government, a representative of the Dolfinarium Harderwijk, Ministry of LNV Officials, and respected members of the marine mammal scientific community who have wild orca research experience.

Project Management: Project Manager

A salaried Project Manager will supervise on-site and day-to-day operations.

Project Management: Scientific Committee

A Scientific Committee, to be chosen by the Steering Committee, will advise the Project Manager on all aspects of procedures involving diet, care, training, transport, rehabilitation and reintroduction.

Funding

All phases involved in Morgan's return to a natural life in the ocean will incur costs. It will be important to identify the components of these costs and estimate their magnitude as soon as possible after a plan is agreed to by Dutch authorities and a Project Manager appointed. Once the estimated costs are known, steps should be immediately taken to source the required funding. This should include obtaining commitments from the Dutch Government and possibly other Governments within Morgan's proposed Home Range. Additionally, international NGOs and other interested stakeholders such as the public can be asked to provided financial assistance. There can be no doubt that Morgan's return will be costly, but if the will exists, the means will be found.

Liability

The Expert Panel recognize that returning Morgan to a natural life in the ocean will involve complex procedures and unknown factors, all of which may carry risks to Morgan. The Expert Panel are prepared, from the outset, to attribute no blame to participants for any failure, or hindrance to Morgan's successful release and request only that best efforts are made to help Morgan regain her ocean life.

Endorsements

This proposal for Morgan is endorsed by the following individuals (in no particular order). Further details can be obtained from www.freemorgan.nl

Paul Spong & Helena Symonds	OrcaLab Pacific Orca Society www.orcalab.org
Howard Garrett & Susan Berta	Orca Network www.orcanetwork.org
Ingrid Visser & Terry Hardie	Orca Research Trust www.orcaresearch.org
Kenneth Balcomb	Center for Whale Research www.whaleresearch.com
William Rossiter	Cetacean Society International www.csiwhalesalive.org
Michael Kundu & Bob MCLaughlin	Project SeaWolf Coastal Protection www.projectseawolf.org
Mark Berman	International Marine Mammal Project of Earth Island www.earthisland.org Free Willy Keiko Foundation www.keiko.com
Christopher Porter	Free the Pod www.freethepod.org
Cathy Williamson	Whale and Dolphin Conservation Society www.wdcs.org

Lara Pozzato
Peter Pijpelink
Jan van Twillert
Norma Koning

DISCLAIMER

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Collaborators in release, rescue and rehabilitation of cetaceans							
Name	**Organization**	**Keiko**	**Springer**	**Luna**	**Other**		
Dr. Paul Spong	OrcaLab Pacific Orca Society	ONWAAR	WAAR	ONWAAR			
Helena Symonds	OrcaLab Pacific Orca Society	ONWAAR	WAAR	ONWAAR			
Michael Kundu	Project Seawolf	WAAR	ONWAAR	WAAR			
Bob McLaughlin	Project Seawolf	WAAR	WAAR	WAAR			
Jean-Michel Cousteau	Ocean Future Society	WAAR	ONWAAR	ONWAAR	1 orca (NZ)		
Howard Garrett	Orca Network	WAAR	WAAR	WAAR			
Susan Berta	Orca Network	WAAR	WAAR	WAAR			
Terry Hardie	Orca Research Trust	WAAR		WAAR	1 orca (NZ)		
Dr. Ingrid N. Visser	Orca Research Trust	WAAR	ONWAAR	WAAR	7 orca (NZ)		
					2 Tursiops truncatus (NZ)		
					2 Delphinus delphis (NZ)		
					1 Lagenorinchus obscurus (NZ)		
					50 ++ Globicephala macrorhynchus		
Holly Lohuis		ONWAAR	ONWAAR	ONWAAR	1 orcs (NZ)		

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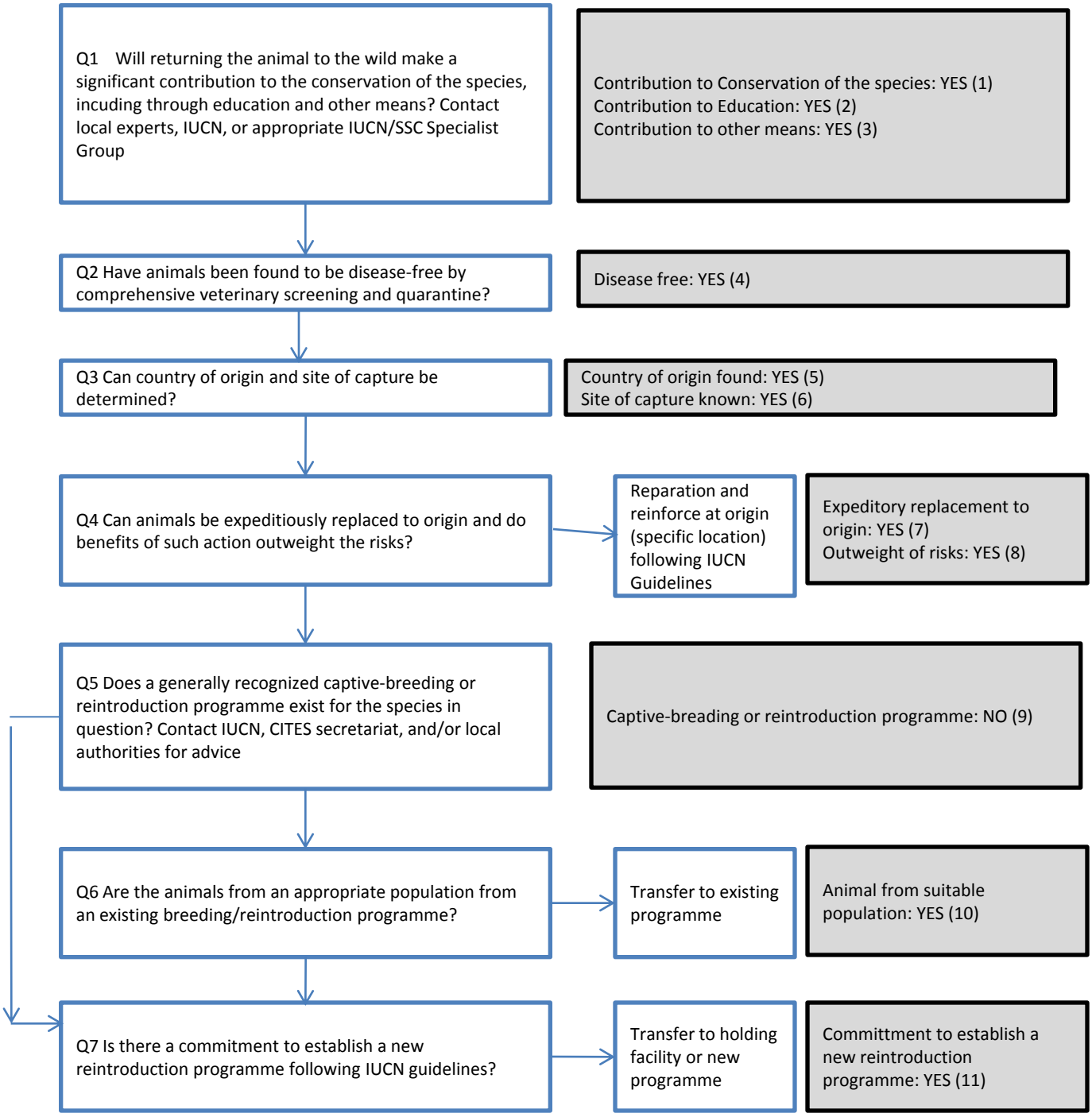
Appendix One.

CITES guidelines
Annex 1
Decision tree for "Return to the wild options"

Free Morgan Group (FMG) process steps indicating Morgan should be released



(1) Orcas are long living, “K strategy” animals and the loss of a young female could be criting for a population which in the past has been severely harvested and depleated by humans (Nichols et al. 1976)

(2) See “Suggestions for returning Morgan the orca (killer whale) to a natural life in the ocean” FMG 2011

The full process of rehabilitation and release will be photo and video documented, several interviews and at least one documentary will be made and while in the semi-natural sea pen Morgan will be visible to the general public (which won’t be interacting with her) and educational experts will be available to the public for questions/talks.

(3)Other means are described as:

a. Scientific contributions: Morgan’s rehabilitation and release will offer a prime precedent for all the future rescues of cetaceans, in partucular orca. The whole rehabilitation and release procedure will be documented and scientific papers published in peer reviewed journals.
b. Technological contributions: we aim to follow Morgan during and after her rehabilitation and release, via satellite signal; this satellite tag will be specifically designed and /or adapted to Morgan, hence it will be inoffensive, secure for her health, highly precise and fully and easily portable by the animal. A refinement of benign suction cups will be necessary for deploying monitoring equipment such as “D-tag”, “Crittercam” etc.

(4) According to the information provided by the caretakers at the Dolfinarium Hardewijk, Morgan has no desease, conditions or pathology that would effect a release back into the wild.

(5) Different researchers (Dr. A. Foote via DNA analysis, Dr. F. Samarra via vocalization analysis) indipendently confirmed that Morgan originates from the herring orca population found off Norway, or possibly Iceland (less likely).

(6) The site of capture, dated 23rd June 2010, is the Wadden Sea, semi enclosed section of the North Sea, in Dutch waters.

(7) See “Suggestions for returning Morgan the orca (killer whale) to a natural life in the ocean” FMG 2011

(8) The extreme risk that Morgan may encounter is premature death; howerver, given the significantly shortened life span of female captive orcas compared to wild orca (28 vs 70-90 years on average), and given the enormous difference in life quality that any wild animal has compared to a captive conspecific, we believe that the possible but unlikely event of premature death in the wild outweights the risk of a rehabilitation and release attempt.

(9) Morgan is a young *O. Orca* female born in the wild, found emacitated and dehydrated, nursed back to health and kept in captivity for over one year.

(10) Morgan's reintroduction in her own population would present limited or no risk for the population.

(11) We present numerous letters of endorsment of Visser and Hardie's report on Morgan and written statements of committment to Morgan's rehabilitation and release by researchers and experts.

REFERENCE

Nichols J.D. et. al, (1976) "Temporally dynamic reproductive strategies and the concept of r- and K-selection", The American Natuiralist, vol. 110, No. 976, p. 995

APPENDIX TWO
IUCN Guidelines for Re-introductions

Restrictions within the framework of these Guidelines with regards to Morgans Rehabilitation & Release

The IUCN GUIDELINES for Re-introductions were drafted in response to an increase in the occurrence of re-introduction projects worldwide. It is noted in their document that ´These guidelines are intended to act as a guide for procedures useful to re-introduction programmes and do not represent an inflexible code of conduct.´

Under the Guidelines Re-introduction document is a section labeled

1. **DEFINITION OF TERMS**

Morgan's case does not fall precisely under any category within this framework but we outline how we have assessed that Morgan could be covered by these Terms (see text sections starting with FMG). Numbering follows the original scheme as laid out in the IUCN document.

"Re-introduction": an attempt to establish a species **(2)** in an area which was once part of its historical range, but from which it has been extirpated or become extinct **(3)** ("Re-establishment" is a synonym, but implies that the re-introduction has been successful).

FMG. Morgan is a free born animal that would return to the wild after a limited amount of time spent in captivity.

"Translocation": deliberate and mediated movement of wild individuals or populations from one part of their range to another.

FMG. Morgan is a wild animal to be translocated from a captive facility back to her natal home range.

"Re-inforcement/Supplementation": addition of individuals to an existing population of conspecifics.

FMG. Morgan originated from the population she will be returned to.

2. **AIMS AND OBJECTIVES OF RE-INTRODUCTION**

a. Aims:

The principle aim of any re-introduction should be to establish a viable, free-ranging population in the wild, of a species, subspecies or race, which has become globally or locally extinct, or extirpated, in the wild. It should be re-introduced within the species' former natural habitat and range and should require minimal long-term management.

FMG. We are aware that in Morgan's specific case there won't be any establishment of a new free-ranging population, species or race; nevertheless we are firmly convinced that following the IUCN Guidelines this specific rehabilitation and release project will enhance the local population of orca through the re-introduction of a breeding female.

Re-introducing a female who could potentially breed is vitally important in the context of the fact that the Norwegian population orca was severely culled in the past (e.g., 143 male orca and 173 female orca (of which 107 contained fetuses) were killed during the period

1938-67 and 1978-81 (Christensen 1984)).

4. PRE-PROJECT ACTIVITIES

(iii) Choice of release site and type

- For a re-introduction, there should be no remnant population to prevent disease spread, social disruption and introduction of alien genes.
- The re-introduction area should have assured, long-term protection (whether formal or otherwise).

FMG. We believe that in this specific case the presence of population of origin will be the key point and condition for her release. Morgan has been given a ´clean bill of health´ as outlined by van Elk (2010). Furthermore, Morgans health will be strictly monitored whilst she is held at DeltaPark Neeltje Jans and before moving her to a sea-pen in Norway.

The Norwegian Government is a signatory to a wide range of conservation treaties and conventions, such as CITES and the Convention on Biological Diversity. As a country they recognize the value of the marine area off the Lofoten Islands (The Royal Norwegian Ministry of the Environment (2006) page 58-59), where Morgan could potentially be released. However they also recognize that there is limited data on many species of marine mammals (see page 109, Section 8.3.2 Marine mammals for details).

4b. **SOCIO-ECONOMIC AND LEGAL REQUIREMENTS**

- Re-introductions are generally long-term projects that require the commitment of long- term financial and political support.
- Socio-economic studies should be made to assess impacts, costs and benefits of the re-introduction programme to local human populations.

FMG. We are aware that the financial issue is important and certainly not to be underestimated. Many of our members have long term experience of fund raising and many of our members can count on the precious help of different benefactors and on the precious contribution to the public. Clearly, political support must be granted and along with it at least partial financial coverage of costs and expenses.

Interaction and interference with human activities (fisheries) is known and documented but in any way it ever resulted detrimental or dangerous for the human population.

REFERENCES

Christensen, I. (1984). "Growth and reproduction of killer whales, *Orcinus orca*, in Norwegian coastal waters." Reports of the International Whaling Commission **Special Issue 6**: 253-258.

The Royal Norwegian Ministry of the Environment (2006). Report No. 8 to the Storting (2005–2006). Integrated Management of the Marine Environment of the Barents Sea and the Sea Areas off the Lofoten Islands. Pp 144.

Letter of Intent between DeltaPark Neeltje Jans and the Free Morgan Group (including the Free Morgan Expert Board).

DeltaPark Neeltje Jans wishes to commend the Free Morgan Group for their attempts to secure Morgan the young orca rescued on the 23 June 2010, for rehabilitation and release back into her native population of orca in Norway. As DeltaPark Neeltje Jans has been involved in the rehabilitation and release of cetaceans (harbor porpoise) in the past, we realize the immense value such a program can have, both for the animals and for educating the public.

We here at DeltaPark Neeltje Jans would like to offer our help and support in the following ways;

1. We can provide 'facilities' in the form of a semi-natural area of the DeltaPark Neeltje Jans complex. The area we are proposing is illustrated in Figure 1.
2. We can provide 'facilities' in the form of storage space for equipment, supplies and vehicles, including parking for the Free Morgan Group staff members.
3. We can provide 'facilities' in the form of an office space which would incorporate internet connections and power. In addition we would provide access to our staff rooms etc.
4. We can provide an area where it would be feasible to place freezers should you require frozen fish to be available for Morgan.
5. We can provide holding tanks for the short-term containment of live fish to enable Morgan to reestablish her skills in hunting fish.
6. We can provide security during normal business hours, for the area where Morgan will be held.
7. We can provide an auditorium for presentations, fundraisers or workshops. This facility has the ability to project onto three large screens above a tank live of native fish.
8. We intend to offer financial support for the care of Morgan. This amount will be agreed upon at a later date.
9. We intend to provide educational displays at our expense (but with the assistance of the Free Morgan Group, please see details below).

We would like to clearly outline that DeltaPark Neeltje Jans in no way wishes to lay any type of claim for the ownership or rights of or for Morgan. We are fully aware that this 'hosting' of Morgan is intended to be of a short-term nature (which may range from six months or thereabouts, to multiple years).

We only wish to facilitate her rehabilitation and release in whatever way we can.

Additionally we wish to make it transparent that we are not asking for Morgan to appear in 'shows' of the nature often associated with theme parks. However, we would like to be able for the public to view Morgan as we believe this is a perfect opportunity to educate the public, not only about orca, but also the value of rehabilitation and release programs for all species.

In return for our support we would request the following;

A. The Free Morgan Group offers two or three (depending on the time of year, visitor demand etc, but exact number to be decided mutually at a later date) educational talks a day about Morgan, the rehabilitation and release plan and, orca in the wild. We would ask that DeltaPark Neeltje Jans was acknowledged for their contribution towards this project during these talks.
B. The Free Morgan Group and its members provide DeltaPark Neeltje Jans with raw materials (e.g., photographs, video) of Morgan as well as wild orca, for our educational displays. The copyright of this material would remain with the respective owners who are members of the Free Morgan Group. We would also ask that this material is, however, available at no cost to use for our in-house displays and publicity associated avenues (such as our brochures).
C. The Free Morgan Group and its members cooperate with DeltaPark Neeltje Jans with media releases and media exposure with regards to the rehabilitation and release of Morgan.

We would like to reiterate that we support the efforts of the Free Morgan Group and again commend you in your plan to rehabilitate Morgan. I personally have a background as a biologist, so I understand the positive effects such a release will have, not only for Morgan but also for the orca population of Norway, where she is reputedly from.

We look forward to progressing this letter of intent into a formal agreement in which Morgans future can be assisted by us here at DeltaPark Neeltje Jans

Sincerely

Bert van de Hoef
Director of Deltapark NEELTJE JANS b.v.
July 21 2011.

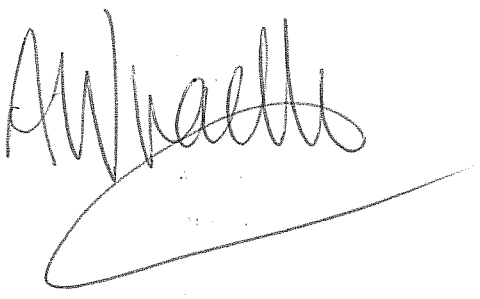
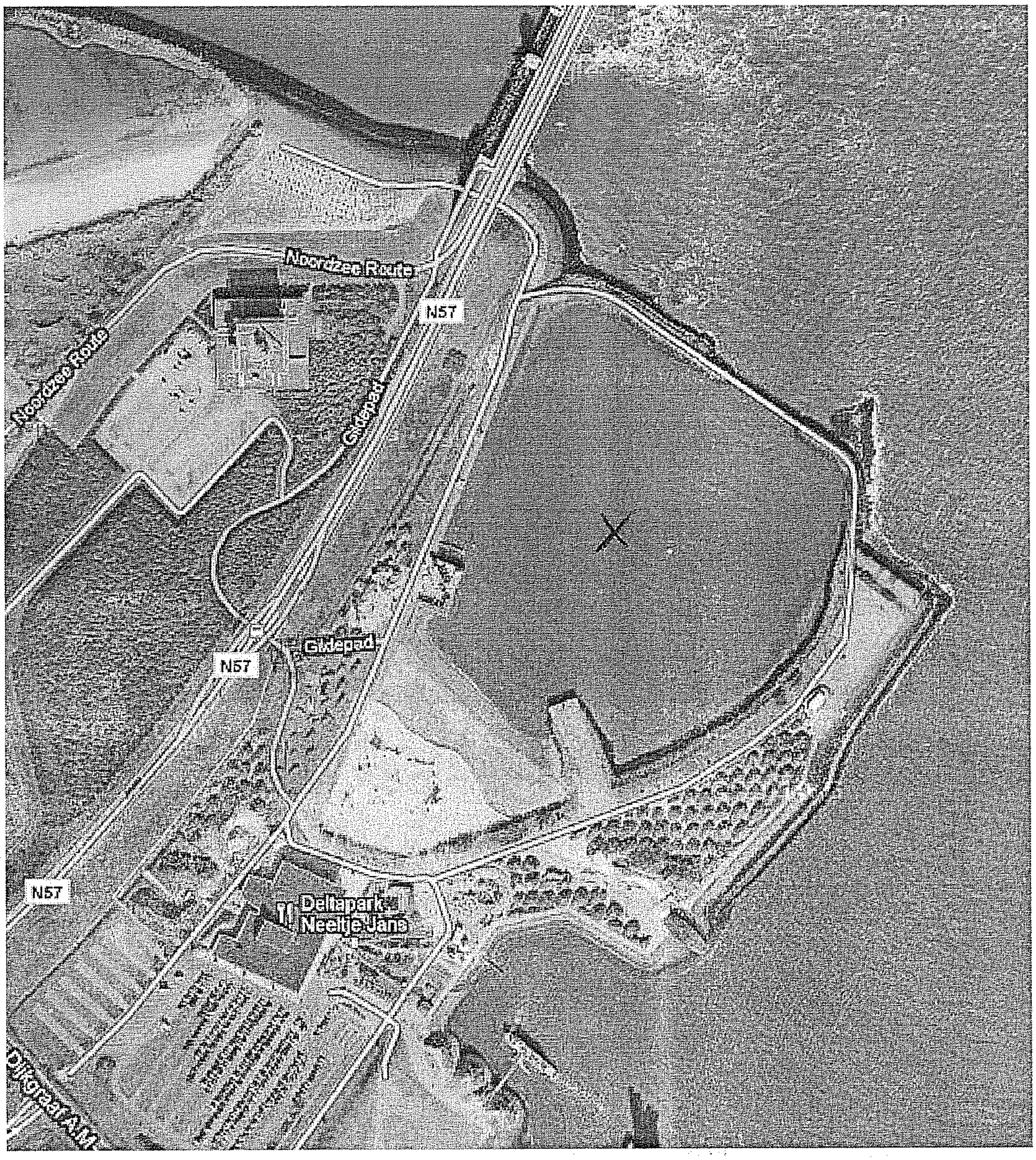


FIG 1.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oceansounds AS · Hjellskjæret · N-8312 Henningsvaer

21 July 2011

To the Free Morgan Group of Experts,

My name is Heike Vester, I am a biologist and I am currently studying the vocal behaviour of Killer Whales (*Orcinus orca*) for my PhD degree at University of Goettingen and the Max Planck Institute of Goettingen in Germany.
I am based out of Henningsvaer and work in the general area of the Vestfjord in Lofoten, Norway. Since 2003 I have been studying killer whales in that region and as part of my research I have collected acoustical recordings of killer whales and compiled a repertoire catalogue of the calls these animals produce.

Last year, Filipa Samarra of the Sea Mammal Research Unit contacted me and asked whether she could use my vocal repertoire catalogue based on spectrograms to find an acoustical match for a young killer whale which had become known as Morgan.
I supplied that repertoire catalogue to Filipa and I have recently been informed that matches were made from the herring feeding Norwegian killer whale population to Morgan´s calls.
I could therefore assume, based on such a match, that Morgan originated from the population of killer whales, which I recorded in the past, i.e., those found off the coast of Lofoten and Vesteralen in northern Norway.
Since I supplied Filipa with the killer whale call repertoire I have collected further acoustical data and expanded the spectrogram collection for this population of killer whales.

On 17th of July, 2011, I contacted Filipa to ask her for her progress on the vocal studies of the captive killer whale and asked for a copy of the recordings of Morgan which were made in the Dolphinarium Haderwijk, The Netherlands, to compare her calls with the now expanded spectrogram repertoire I have. Up to now I have not gotten access to the audio recordings from Morgan, and I am still waiting for a reply from Filipa, who has offered to send me a report she has compiled.

Given the fact that the population of the herring feeding killer whales in Norway may exceed 600 individuals, it is essential to use every study and recording made from this population to look for Morgan's relatives. In addition to Filipa's and my own efforts to find matching groups I suggest to ask other researchers that have previously been working on that population, such as Marlene Simon, Anna Bisther and Dag Vongraven, to assist in finding matches.

In addition, field work should be expanded to look for new groups and matches. Killer whales occur regularly throughout the year around the Lofoten and Vesterålen Island group, and herring often comes close to land in late summer in Andøya and Stø on Vesterålen. This can be followed by the photo archive of two whale watching companies in the area (http://www.arcticwhaletours.com/ and http://www.whalesafari.no/).

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21 July 2011

Last December and January large amount of herring came into the fjord of Andenes and killer whales could be observed from land.

I recommend to contact these whale watching companies and ask for their support to find a suitable place for Morgan. In my opinion a good place to keep her in an open sea pen would be either outside Stø or Andenes, where open contact with herring feeding killer whales could be accomplished.

Killer whales in the north Atlantic have been gone through intensive whaling and 2/3 of their population has been removed by Norwegian whalers until 1981. This has disrupted many family groups and even though they do represent social organisations similar to the killer whale groups of residents in British Columbia, their group formations seem more loose.
We know of a case, where an orphan killer whale "stumpy" was taken care of more than 5 different groups. This young whale was injured and handicapped and his mother was only seen in the very beginning of his encounters. However, many years later he was resighted as a juvenile. He was disabled to catch herring by himself and was supplied with fish by other killer whales. I met stumpy on several occasions and big males were always protected him against my boat.
However, despite his injuries he survived in the wild. I have attached a scan from the book: Norwegian killer whales, by John Stenersen and Tiu Simila for further information.
This shows that killer whales groups in the wild accept individual killer whales that do not belong to their immediate family group.

Anyhow, based on the reports, existing call matches and my personal observations whilst conducting my research, I believe that it is feasible to look at repatriating Morgan into the Norwegian fjords in anticipation of releasing her into a population of killer whales that share her vocal repertoire.

I would like to offer my assistance in any way that I can to ensure that Morgan is given the best opportunity for release back into the wild.
As a researcher who strongly believes in the conservation of this unique population of killer whales, I consider that each and every individual is an important part of the dynamic culture of this population.

Sincerely,

Heike Vester

(Biologist & Manager)

oceansounds science center –
a place where science meets art and art meets people...

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"Stumpy"

The story of "Stumpy" is an example of the insight we can gain into the life of killer whales through long-term observations of known individuals.

"Stumpy" is a young killer whale who was born in 1995. He was first observed in Tysfjord in 1996, and he then had serious injuries to his spine and dorsal fin. He was in the company of his mother, and they were swimming close to the NE15 group, but the mother is not a member of that group.

We did not see "Stumpy" again for several years and assumed he had not survived his extensive injuries. Then, in 2002, he was suddenly back in Tysfjord. We now got more and better pictures of him and were able to see that his left side was badly damaged. He appeared to have been hit by a boat when he was a small calf.

We have several observations of "Stumpy" when he was 7-8 years old, and his behaviour tells us that he is not like other killer whales. A killer whale of that age is normally attached to its mother and its family group, but instead of swimming with his family, "Stumpy" swims with a variety of groups. We have identified at least five different groups which have been looking after him. Both in 2002 and 2003, he was seen several times with the NE15 group, and it was particularly interesting that on those occasions he was accompanied by an adult male who did not belong to the group. It seems as though "Stumpy" feels a strong bond to the NE15 group, perhaps his own family group broke away from it. But why this adult male is with "Stumpy" when he is with the NE15 group is a mystery.

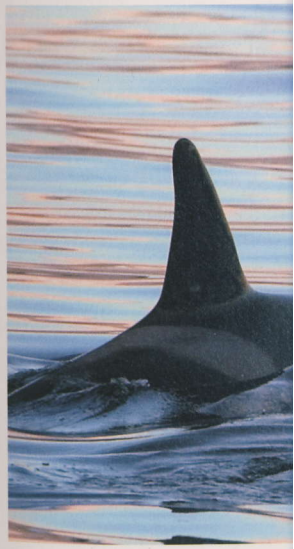
The first photo of "Stumpy", from 1996.

When the killer whales are feeding, "Stumpy" generally remains on the edge of the group. His deformed spine probably prevents him diving properly, but we have still not succeeded in obtaining observations and film of his movements under water. Even though he is unable to take part in pursuing herring, he obviously gets enough food. He probably eats some of the herring that have been stunned by the other animals in the group he is accompanying. There are also two observations of adults taking a herring to "Stumpy".

In addition to ensuring that "Stumpy" gets food, it is very obvious that the adults he is with protect him. It is not easy to get near him with a boat. One or two adult whales are generally between "Stumpy" and the boat, and on several occasions we have seen them push him away from boats, or swim up beside him and guide him away from them.

Since killer whales live in family groups with strong bonds between individuals, it is perhaps not so strange that "Stumpy" is looked after. Nevertheless, it is surprising that a disabled individual is being taken care of by several groups. Even though he was seen with his mother the first year, we do not know her identity, and consequently nor do we know which family group "Stumpy" originally belongs to.

It will be exciting to see what happens to him when he becomes sexually mature and an adult – whether he will still be looked after by others.



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"Stumpy" with the NR group, resting while the other animals are hunting.

"Stumpy" being led away by members of the NR group.

Analysis of Keto's endoscopy video

By Frank Sanchez & Terry Hardie
20 July 2011

We have viewed a video taken by Suzzane Allee which shows the endoscopy of ´Keto´ an orca held at Loro Parque, Tenerife, Canary Islands, Spain.

Although the beginning of the video shows that this facility seems to possess a "bottom up" pool, which is the best way in our opinion, to quickly and with minimum stress have a animal outside a pool, the rest of this endoscopy is really disappointing.

- You can clearly see that the orca IS able to move by himself and is responsive. He clearly responds to any signal from the trainer on the left, opening his mouth on cue until the last moment when he is rewarded by some trainers inserting this huge piece of "equipment" in his mouth to keep it open. This "forced endoscopy" has no point if the animal is not on the edge of dying and is therefore not responding to training. Normally, such intervention in this way would be considered "last minute". It should be only applied when no other choices are possible to save the animal, because he/she is in a really critical state, and not responding to any more stimulus from his/her trainers.

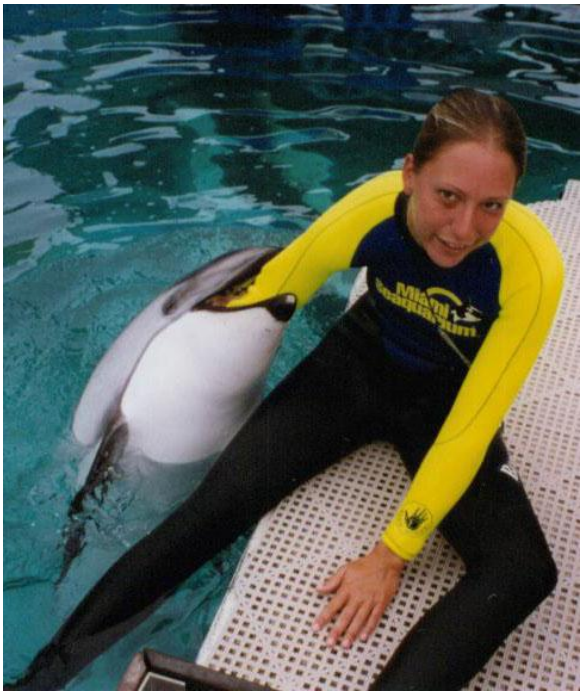
- Obviously this was not the case of Keto in this video, and it saddens us to see the reaction of this animal when, after answering pretty well to all the "open mouth" signals from his trainer, the only answer he got was having several people jump on him and sticking something in his mouth. We can then clearly see some sign of mixed surprise with some anger from Keto's reaction to this. The detail that amaze us though, is that despite all this sudden "aggression" toward him, this orca seems to still move and fight his troubles carefully, not trying to bite or hit his assailant. We have observed this type of response from the animals in other cases of forced husbandry procedures.

- Also, and this is our opinion concerning training there, as Keto was asked to open his mouth several times, without any sign of reward than this "forced endoscopy", there's a good chance the trainers will have some trouble later when asking him to open his mouth again on cue.

- In conclusion, with regards to this video, we will simply say that this husbandry behavior (along with other basic ones such like drawing blood, eye examinations, urine collection…etc) could be perfectly trained by experienced trainers. It is entirely feasible to do these types of husbandry procedures with the animal unrestrained and in the water. This type of husbandry procedures have been done with dolphins (which are much smaller than orca – see picture attached to this letter), but yet with similar, if not bigger, pipe diameter for the actual endoscopy. The procedure, when the training is done

right, could be also really enjoyed by marine mammals. We have observed individual bottlenose dolphins who enjoyed the experience to the extent that they willingly encouraged the examiner to insert their hand into the esophagus (e.g., see attached pictures from Miami Seaquarium). Obviously the hand and lower arm of a trainer has a much larger diameter than the endoscopy tube, but as there is no connection between the trachea (airway) and the esophagus (throat), dolphins (including orca) have no gag reflex, they don't generally feel discomfort when something is in their esophagus.

In conclusion, the fact that Loro Parque had to use this restraining technique to do an endoscopy on Keto is troubling, since if this is their standard method for doing an endoscopy, it illustrates the level (or lack of) experience of the trainers. Not only are the orca who are already held Loro Parque subjected to this inappropriate methodology, but Morgan will very likely be treated the same way at some point.



Left: **dolphin willingly accepting a tube into the esophagus, without restraint and whilst free swimming in the tank.** Right. **Dolphin encouraging trainer to insert her hand into the mouth and esophagus, illustrating that large items can be inserted, with the animal willingly participating. This was not a trained behavior and there was no fish reward associated with the event.**

To Dr Ingrid Visser and whom else it may concern

Subject: The well-being of Morgan the Orca

Edinburgh, July 19th 2011

Dear Dr Visser

Many thanks for sending me your report on the possible rehabilitation of Morgan the Orca, and the extensive video footage of Morgan in her tank at the Dolfinarium in Harderwijk The Netherlands. I am a biologist specialised in animal behaviour and welfare, and have a long-standing interest in chronic welfare problems in captive animals such as boredom and depression. I mainly work with farm animals, but it is clear from the scientific literature that symptoms of disturbed welfare tend to be recognisable across species due to common underlying behavioural organisation.

I am writing in support of the conclusions and recommendations of your report. Given the highly social, mutually interactive character of Orcas, and their propensity to cover great distances when hunting for food, keeping Morgan isolated in such a small, shallow barren tank amounts to severe psychological deprivation. If we were to keep a young wolf or lion (also social hunters) on its own in an empty concrete cage, it is instantly clear this would be intolerable and would cause public outcry. It is perhaps worth re-iterating that Morgan is not a fish in bowl, but, like wolves and lions, a highly developed, intelligent mammal.

The video footage shows Morgan repeatedly inspecting corners and walls of her enclosure, and swimming back and forth along those walls, which in land-based species (bears, large cats) is described as 'pacing', and has been interpreted as escape behaviour. This behaviour tends to become stereotyped over time and signifies chronic frustration of the intention to escape.

Furthermore it appears that Morgan shows avid anticipatory behaviour towards the trainer, keenly looking what she is doing, responding energetically and following her in her movements. Watching the learning/training process throughout several clips, I get the impression that she is trying to figure out what she is meant to do, testing different responses and monitoring the effect. In the animal learning literature this is called 'hypothesis behaviour', indicating that learning is basically an active, engaged and mutual process rather than a matter of passive conditioning.

At one point, when the trainer leaves after some physical interaction with Morgan, Morgan seems perturbed and tries to initiate new contact. One could surmise that the intense, highly focused, restless nature of Morgan's orientation towards people reflects boredom – out of her deprivation comes a strong need for contact – it's all she's got. Animals actively structure their own behaviour and environment, and their well-being is strongly linked to this competence. In this enclosure there is nothing to structure or interact with other than the trainer – the toys visible in your report are entirely inadequate to meet the needs of Morgan's intelligence.

Overall Morgan makes a highly responsive and alerted impression, keen to get out and engage, suggesting that this enclosure reflects a serious form of imprisonment.

I agree therefore that it is unacceptable to keep Morgan in her present tank. A larger enclosure would still continue the deprivation unless it were extensively semi-natural and allowed a pod of orcas to roam and hunt. It is clear to me that as you suggest, careful and controlled rehabilitation of Morgan is by far the preferred option.

With kind regards,

Françoise Wemelsfelder

Senior research scientist, Scottish Agricultural College, Edinburgh, UK.

Analysis of Morgan's behavior at Dolfinarium Harderwijk from video clips

By Frank Sanchez
26 June 2011

film10.MPG, film11.MPG & film12.MPG: Morgan looks pretty bored and tries to keep herself busy with something in the bottom of the pool. It looks like she is either playing with some algae there, or destroying the concrete, since all I can see is a kind of black round spot where she often dives and stays. I also noticed she tends to go back to that window panel (3rd panel from left), where I've seen her previously playing in video and photographs. Although, I can clearly see that whatever is in the bottom of this pool in that black spot, now keeps her attention much more.

Also, I noticed some weird skin pattern on the top of her tail fluke (may be present on the bottom too ? But hard to see on the white color though), which may be related to the fact the pool is not deep enough, she often rubs her tail against the bottom, while standing vertically outside of the water (while looking at a trainer for instance).

I also like the way she randomly takes off and swims away fast, with her tongue out and such (without apparent trace of any trainer), which is really a nice sign of a young and healthy orca who is good in her mind versus those who just float in one spot all day. But that's also another sign she is definitely trying to catch some attention while being bored though. I also noticed that she tends to vocalize a lot too, especially when she comes back to that black spot in the bottom.

I also noticed she rubs herself sometimes against the bottom and edges of the pool, which should be normal as long as she doesn't do that excessively (which could mean some skin problems if she does).

film1.MPG & film9.MPG: Here I can see her vocalizing quite a lot, while trying to often check toward the people and outside the water (on the stage). Probably she knows something is going to happen (training session, food...etc), because she looks to me like she is anticipating something. Finally, when nothing happen by the end of the video, she returns to her black spot in the bottom.

film2.MPG: This is some other behavior that enforces my thought about her being really bored; trying to entertain herself the best she could. If this orca is left alone somewhere, she should have at least someone interacting with her all the time during the day in my opinion. Leaving her alone that way is

good if they wanted to take care of her and then release her right away, but due to the fact they already said they don't want to release her, including the fact she is feeling way better now too, they should have left someone with her to keep her less bored, avoiding at the same time all the "destroying behavior" she may have, like the damage to her teeth trying to bite on the window frame, or rubbing against that black spot in the bottom of her pool (which is probably the cause of her damaged rostrum too now).

film4Training2.MPG & film5Training3.MPG: First of all, I noticed here that the trainer asked something to Morgan, which she refused or didn't do correctly. In any case Morgan left and returned with an "annoyed" reaction. Such ánnoyed´ behavior is often seen when the animal either ignores the trainer, ignores a cue from the trainer, or may be seen when the animal has a displacement behavior such as chewing a window frame.

Frankly, I would have been frustrated also if this trainer had asked me to do something, as she doesn't seem to know really what she wants. The trainer appears really confused with her signals, as well as excessively using the whistle to bridge Morgan. This has resulted in the impact of the whistle being diminished. It is likely that these issues arise because the trainer has little experience and/or has been poorly trained herself. At least the trainer seems to be full of energy, which orca love though.

The bubbles game is nice and interesting for Morgan it seems. That's the kind of game I expect to see much often around Morgan though (see my comment above on "film2.mpg", with regards to keeping her in captivity in contrast to release). I haven't seen the trainer reinforcing Morgan with any fish on this session though, but just using bubbles as secondary reinforcement. It appears also that she tried to use the bubbles as a trigger to make Morgan do some bubbles as well under water. Interesting approach, but not really what you should do if you want good results though.

I also noticed toward the end, that this trainer uses physical contact as secondary reinforcement (petting/stroking). Again, no fish seem to be involved in this session, as far as I can tell. It is possible for an animal to become very frustrated when no fish is given multiple times.

film6Training4.MPG & film7Training5.MPG: This video seems to be the same training session as the one I described above, although this time the trainer is using ice cubes as reinforcement, which Morgan seems to not really care for, from what I can clearly see. Secondary reinforcement is good to use sometimes, but if this trainer is looking for results, without having a frustrated (pissed off/aggressive orca), she should alternate with primary reinforcement, or not using a whistle at all and do a "games" session, not training.

film8Training6.MPG: That's what I was actually talking about! As you can see right in the beginning of this video, Morgan seems to show some sign of aggression already (Morgan opens quickly her mouth a little, shaking her head quickly, and then bites some of the concrete around the window as the trainer keep asking), being probably frustrated from what this trainer is asking her (best example of aversive reinforcement). The trainer seems to realize the aggression a bit, and tries to come back to something Morgan likes: the bubbles. All will have been good if this trainer stopped there, but instead she seems to not get it, and keep asking for the behavior Morgan refuses to do. At the end, this trainer have no other choice than leaving the session on a "negative note" with Morgan, which probably will make the orca much more frustrated and/or aggressive (and people wonder about why trainers are attacked by orca in park !). At the end, I noticed that this trainer tries again to calm Morgan down by using some bubbles again, but you can clearly see that Morgan is not so much into it though. So, the trainer has no other choice at this point other than stopping the session completely, and start answering questions to the people probably, from what I can hear in the background. Morgan was left frustrated and just standing there in front of the window for a while, looking at her trainer and wondering about what's going on, since I haven't seen any "end session" sign used. So at this point, the orca doesn't even know that the session is over. Sorry, but it often frustrates me as well to see such unprofessional training done with orca.

film1.MPG & film2.MPG: Morgan seems to vocalize a lot in those videos, and appears quite impatient (frustrated) about something. Maybe she sees a trainer around or it's feeding time, and she anticipates that ?. I also noticed that they have a LOT of people all the time in front of those windows too. I do hope that's not always the case and that there's some times where people are not allowed there, because they are making a really loud background noise, that must be probably heard quite well under the water by Morgan all the time.

film6Training4.MPG: Here is the same trainer as on the other video (the one who uses the whistle too much). Amongst other behavior I've seen her trying to train previously, and commented on, I see she tries to reinforce Morgan with ice-cubes. From what I saw, Morgan seems to totally not care about this kind of reinforcement though.

Ministry of Economic Affairs,
Agriculture and Innovation

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Date

Our ref.
180009

Re Why orca Morgan cannot be set free

Thank you for writing to express your concern about the orca Morgan at the Dolfinarium in Harderwijk, the Netherlands. This young female had obviously lost her family group and ended up in the Wadden Sea on the Dutch coast, which is several thousands miles from her presumed birthplace. The orca was ill and almost dying.

The Ministry of Economic Affairs, Agriculture and Innovation was asked if there was a possibility of capturing her, in order to rehabilitate her. The Dolfinarium is the only location in the Netherlands which has a government permit allowing it to keep small cetaceans. The exemption on which this permit is based contains the condition that a wild animal may be kept for revalidation for a limited time only if there is a reasonable chance that return to the wild is a viable option.

Morgan was saved on 23 June 2010, after she nearly stranded on a pier and was taken to the Dolfinarium. There she was examined and it was concluded that she had a chance of survival. She was given medical treatment and nursed intensively to get her into a better condition.

The revalidation of Morgan has been successful in that within six months she has almost tripled in weight. To discover whether she had a chance of survival in the wild, the Dolfinarium asked the advice of a group of seven independent scientists with expertise in small cetaceans and especially orcas. In November these scientists unanimously concluded that this very social and intelligent animal had no chance of survival if she were to be released without knowing her family group. It was therefore concluded that Morgan should be either euthanized or kept in captivity for the rest of her life.

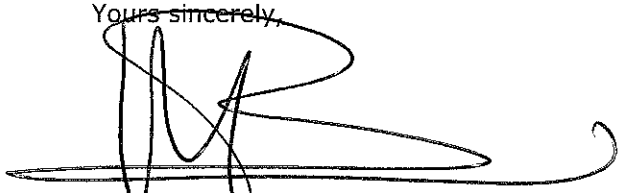
The conditions under which Morgan may remain in captivity are that she be kept:

- with other orcas
- at a location with good facilities suitable for such large predatory animals
- at a location which places emphasis on education.

The Dutch Ministry does not own animals collected from the wild. It only issues permits to keep wounded, traumatised, injured or orphaned animals with the intention of releasing these animals into the wild after revalidation. If no other possibility is available then a different solution based on solid scientific evidence is permitted.

In the case of Morgan the orca, all legal procedures have been followed. It's now up to the Dolfinarium to find a good new home for the orca where she can be an ambassador for her species and help to raise awareness of the beauty of wildlife.

Yours sincerely,



Dr Henk Bleker
Minister of Agriculture and Foreign Trade

Nature, Landscape and Rural Affairs
Team Biodiversity

Our ref.
180009

To whom it may concern,

I am a post-doctoral fellow at the Centre for GeoGenetics at the University of Copenhagen. My doctoral thesis focused on the use of an extensive dataset of tissue samples and photo-identification of killer whales in the Northeast Atlantic to investigate population structure in this species in this region. The results of this study formed the basis of reports and consultation with the relevant departments of the Scottish, Norwegian, Iceland and Spanish Governments and was therefore a valuable advisory tool for management and conservation. This work was also published in the highly respected peer-reviews scientific journals Molecular Ecology, Genome Research and Evolutionary Ecology.

It was therefore decided that I was in the best position to try and apply genetic analyses and photo-identifiation matching to try and identify the population, and if possible, the pod of Morgan. The details of the work conducted have previously been given in the extensive and comprehensive report compiled by Niels van Elk. Briefly, there were no photographic matches of Morgan's dorsal fin, eye patch or the underside of her tail flukes with the catalogue of over 1,000 individuals that have been photo-identified in the Northeast Atlantic. The mitochondrial DNA control region and further diagnostic regions of the mitogenome were sequenced and compared with a sequence library of over 200 individuals including historic strandings from the Dutch coast. There was a match with DNA sequences from the Norwegian herring-eating killer whale population. This was then confirmed using acoustic methods to search for a match of stereotyped call type repertoires, work which was conducted by Filipa Samarra of the Sea Mammal Research Unit. Some call types produced by Norwegian pods were matched to Morgan's calls.

Further genetic analyses will not shed further light on Morgan's origins. To identify relationships between individuals using DNA, photo-id or acoustics requires not just data such as the DNA of the subject, but also a comprehensive catalogue with which to compare it to. Something that none of the parties affiliated to FreeMorgan possesses as none of them have ever been involved in any research work on North Atlantic killer whales to date. Collecting this data is extremely challenging. In 2007 I spent one month in Northern Norway trying to collect biopsy samples from killer whales for DNA analysis. This was with the logistic support of the Norwegian Naval Research Department (FFI) and their vessel the Svedrup. We collected samples from just three individuals. Due to the light conditions there were no usable photo-identification photos collected concurrently. This population contains over 1,000 individuals based on Mark-recapture abundance estimates by the International Whaling Commission. The tissue library that the DNA sequences from Morgan were compared to represents over a decade of data collection at a cost of several tens of thousands of euros.

Using this mutli-discipliary study we were therefore able to identify Morgan's natal population, but were not able to identify her pod. The opinion of all the scientists consulted and as far as I am aware, all scientists with experience of working with this species in these North Atlantic waters, is that a release, in any form including the gradual release proposed by FreeMorgan, would lead to the slow death of Morgan by starvation.

My research career has led me to conduct research in Washington State USA, British Columbia Canada, the Aleutian Islands, the Strait of Gibraltar, Iceland, Norway, Shetland, the North Sea and Ireland. In each location I have had to adjust my research technique to match the local conditions, and as those conditions have changed, which they did drastically in Norway following the change in migration of the herring, I have to adjust my approach. The

proposal put forward by the FreeMorgan group is designed around a set up that could and has worked in the nearshore waters of British Columbia or Washington State where every individual is censused annually and population sizes are small and there is high site fidelity to core areas. The parties that support FreeMorgan are those which only have experience of working in these sheltered North Pacific waters with these well-studied populations and they have no experience of working with a pelagic North Atlantic population of over 1,000 individuals.

It is therefore my independent opinion that the request for DNA from FreeMorgan should not be granted, it will not provide any further information that can help Morgan and is not in her best interest. At this point the discussion should be focused on how to enhance her life in captivity and further delays on putting this into action will be detrimental to her well-being.

Yours faithfully

Dr Andrew Foote

--

Dr Andrew Foote
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18th April 2011

Dear Mr Fopper

I am writing on behalf of the scientists of the Free Morgan Group, an informal coalition of experts with considerable experience with wild orcas and the release of captive and rescued cetaceans. In particular, on behalf of Dr. PhD Paul Spong and Dr. Phd Ingrid Visser, 2 internationally well known orca-scientists that work in our Expert Board.

We requested various times, in various occasions you cooperation and the possibility to have copy of the health records and results of the scientific and medical investigations that the Dolfinarium conducted for Morgan.

We've always been denied access to those files.

We know that personnel working for the Dolfinarium publically stated that those records are available to scientists: hence we cordially repeat our request of having copy of the following material:

1. Health records (tests run at the Dolfinarium, veterinary assessments on Morgan's health from when you got her till present days)
2. Data and results/interpretation of the numerous samples that the Dolfinarium sent abroad (mainly to St. Andrew's University) concerning DNA, call repertoire and ID pictures.

3. Any further document connected to Morgan's health, possible provenience or any other investigation the Dolfinarium might have conducted on Morgan.

I trust in your understanding and your cooperation: our scientists would like to evaluate and study those files in order for them to asses first hand the situation and to be able to possibly offer their scientific opinion regarding Morgan's case.

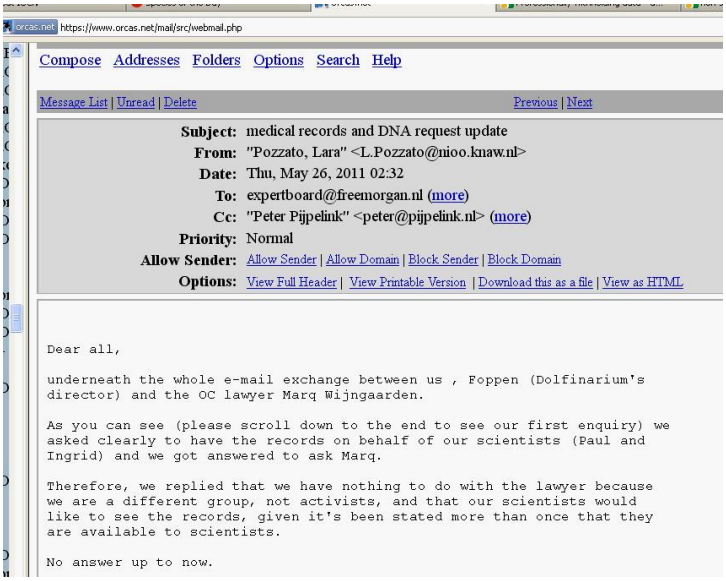
We look forward to your prompt answer.

Yours sincerely,

Lara Pozzato Free Morgan Support Group

On behalf of

Dr. PhdIngrid Visser, Orca Research Trust
Dr. Phd Paul Spong, Ph.D., Director of OrcaLab and Pacific Orca Society



Dear all,

underneath the whole e-mail exchange between us , Foppen (Dolfinarium's director) and the OC lawyer Marq Wijngaarden.

As you can see (please scroll down to the end to see our first enquiry) we asked clearly to have the records on behalf of our scientists (Paul and Ingrid) and we got answered to ask Marq.

Therefore, we replied that we have nothing to do with the lawyer because we are a different group, not activists, and that our scientists would like to see the records, given it's been stated more than once that they are available to scientists.

No answer up to now.

::::::::::::::::::

From: Marten Foppen [mailto:Marten.Foppen@dolfinarium.nl]
Sent: Tuesday, May 24, 2011 9:39 AM
To: info@freemorgan.nl
Subject: RE: Request for information Morgan.
Importance: High

Dear Mrs. Pozzato, Mr. Pijpelink, Mr. Twillert,

On behalf of the Orca Coalition, Mr. M.F. Wijngaarden has already requested information from Dolfinarium concerning Morgan. Therefore, with respect to your e-mail of 18 April 2011, I kindly refer to mr. Wijngaarden.

Met vriendelijke groet,
Marten Foppen MBA

General Manager
DOLFINARIUM
Strandboulevard Oost 1
Postbus 9114
3841 AB HARDERWIJK
t: +31 (0)341 467443
f: +31 (0)341 425888
m: +31 (0)6 10702276
e: marten.foppen@dolfinarium.nl

::::::::::::::::::::::::

Van: info@freemorgan.nl [mailto:info@freemorgan.nl]
Verzonden: vrijdag 20 mei 2011 10:42
Aan: Marten Foppen
CC: info@freemorgan.nl
Onderwerp: Request for information Morgan.

Free Morgan support Group
PO BOX 292
3340 AG Hendrik Ido Ambacht
The Netherlands
e-mail: info@freemorgan.nl

DOLFINARIUM HARDERWIJK
Attn: Marten Foppen, General Manager
Strandboulevard Oost 1
Postbus 9114
3841 AB HARDERWIJK
e: marten.foppen@dolfinarium.nl

18th April 2011

Dear Mr Foppen

RE: Request for Health and Scientific Records for Morgan the female orca (Orcinus orca)
I am writing on behalf of the scientists of the Free Morgan Group, an informal coalition of experts with considerable experience with wild orcas and the release of captive and rescued cetaceans. In particular, on behalf of Dr. Paul Spong (Phd) and Dr. Ingrid Visser (Phd), two internationally well-known orca-scientists that work in our Expert Board.

You may recall from our meetings and telephone conversations that the Free Morgan Groups has have requested various times your cooperation with regards to supplying us with a copy of the health records and results of the scientific and medical investigations that the Dolfinarium Harderwijk conducted for Morgan.
. To date we have not received these files.
* We have been informed that personnel working for the Dolfinarium Hardewijk publically stated that those records are available to scientists: hence we cordially repeat our request of having copy of the following material:

1. Health records (tests run at the Dolfinarium, veterinary assessments on Morgan?s health from when you got her until the most recent health documentation)

2. Data and results/interpretation of the numerous samples that the Dolfinarium Hardewijk sent abroad (primarily to St. Andrew?s University) concerning DNA, call repertoire and ID pictures.

3. Any further document connected to Morgan?s health, possible provenience or any other investigation the Dolfinarium might have conducted on Morgan.

I trust in your understanding and your cooperation: our scientists would like to evaluate and study those files in order for them to asses first-hand the situation and to be able to possibly offer their scientific opinion regarding Morgan?s case.

*mentioned in the tv show Pauw en Witteman by Mr van Elk.

We look forward to your prompt answer.

Yours sincerely,

Free Morgan Support Group:

Lara Pozzato
Peter Pijpelink
Jan Twillert

On behalf of
Dr. Ingrid Visser (PhD), Orca Research Trust
Dr. Paul Spong, (PhD), Director of OrcaLab and Pacific Orca Society

-----Messaggio originale-----
Da: Foote, Andrew David [mailto:a.d.foote@abdn.ac.uk]
Inviato: sab 07/08/2010 17.23
A: Pozzato, Lara
Oggetto: RE: update

Lara,

Lets clear the air a bit.

I don't think any of you are morons. Clearly you have a good background in marine biology. But as you know each area of marine biology is highly specialised.
When Luna was first discovered I'd spent 3 or 4 months at Orcalab, and had just started on my MSc and had completed a field season with Luna's population.
But it wasn't enough experience to be involved in that process and I left it to those that had more experience. Its a really difficult scenario and none of us really know what will happen if she is released in to the wild, personally I am terrified of giving the wrong advice that ultimately leads to Morgan's death at sea or her being moved to Sea World, but I really think that those of us that know the details of the movements of the Northeast Atlantic populations are in the best position to advise on that and have to take that responsibility.

I haven't been keeping you in the dark for any other reason than I promised the Dolfinarium not to discuss the results and I have to respect their wishes.
But in the strictest confidence, they have provided photos of all the relevant features for photo-id, we are currently sorting out the CITES permits to send skin to our lab for DNA analysis and she isn't vocalising regularly so acoustics don't seem to be a possibility (the acoustics catalogues don't exist for the Atlantic as the do for the Pacific anyway). After looking through the photo-id data we haven't found a match and so finding the pod doesn't look possible, therefore it will just be the population that we will be able to ID. Again I have to stress that this is not to be passed on to anyone on your board or the group, otherwise if it gets back to the Dolfinarium I don't get the DNA.

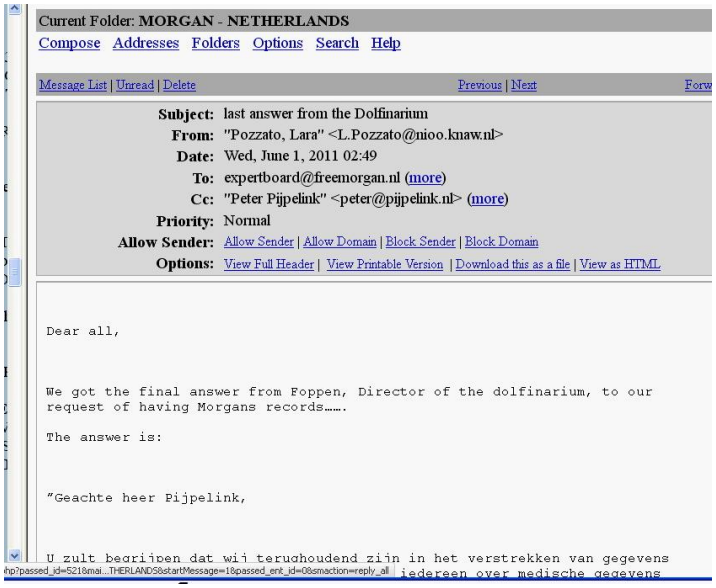
Its positive that you have a meeting with the Dolfinarium. From the conversations I have had with them I have got a good impression and I believe they have the best intentions...maybe I am being naive. As I mentioned they have pulled together a very good group of people for getting advice on what to do next. Ultimately it will be the Ministry of Agriculture who makes that decision not the Dolfinarium. Hopefully the Dolfinarium can find a role for your group. Fund raising would be a useful one. The genetics analysis alone will cost several hundred euros which I will have to find the budget for.

Sorry for any offence caused by email but I felt very strongly that you were ignoring my advice, and that you had collected a board of experts that consisted mainly of anti-captivity activists - the Dolfinarium are likely to be less communicative and open I think to such a group. Lastly I felt that you hadn't made the case entirely clear to the board of experts about the progress that was being made.

Good luck with your meeting, as I say I hope you do find a role, as I said before I know you have the best intentions. I hope I've made my concerns clear and you understand there is nothing personal meant by them. I'm away as of monday from email for a while. I think Astrid is a good 'middle' person for any further discussions.

Best,
Andy

1 June 2011 – email regarding Morgan's DNA – further refusal from Dolphinarium Harderwijk. Translation in ENGLISH BELOW



Dear all,

We got the final answer from Foppen, Director of the dolfinarium, to our request of having Morgans records…….

The answer is:

"Geachte heer Pijpelink,

U zult begrijpen dat wij terughoudend zijn in het verstrekken van gegevens over Morgan. Het is niet de bedoeling dat iedereen over medische gegevens en/of DNA-materiaal kan beschikken, al was het maar om ondeskundig gebruik te vermijden.

Het is ons onduidelijk welke methoden zouden worden toegepast. Zonder deze informatie en een eigen beoordeling of u als belanghebbende kan worden aangemerkt, willen wij in het belang van Morgan geen informatie ter beschikking stellen.

Ik vertrouw erop u hiermee voldoende te hebben geïnformeerd. "

Google translate version:

"Dear Mr. Pijpelink,

You will understand that we are reluctant in providing information about Morgan. It is not intended that anyone can have medical information and /or DNA material, if only to avoid improper use.

It is unclear to us what methods would be applied. Without this information and its own assessment of whether you can be considered as an interested party, we in the interests of Morgan make no information available.

I trust you to have sufficient information."

-----Messaggio originale-----
Da: Foote, Andrew David [mailto:a.d.foote@abdn.ac.uk]
Inviato: sab 07/08/2010 17.23
A: Pozzato, Lara
Oggetto: RE: update

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Best,
Andy

Expert advice on the releasability of the rescued killer whale (*Orcinus orca*) Morgan

Dolfinarium Harderwijk- SOS Dolfijn

Date: 14th November 2010

Contributing experts:

Kees Camphuysen
John Ford
Christophe Guinet
Mardik Leopold
Christina Lockyer
James McBain DVM
Fernando Ugarte

Author: Niels van Elk

Content

Prologue

This document is written to facilitate a careful and transparent choice on whether a juvenile successfully rescued killer whale should be released or remain under human care.

The Dolfinarium has a longstanding history, since 1967, of rehabilitating toothed cetaceans of various species (recently reorganised and tasked to the association SOS Dolfijn). It is therefore well acquainted with the problems that surround rehabilitation and release. In 2003 a document was written which outlined the strategy and protocols for rehabilitation and release of harbour porpoises, which are the vast majority of animals rescued[27].

Before 1987 killer whales were part of the collection of marine mammals of the Dolfinarium in Harderwijk and some expertise on handling this species was still present when Morgan arrived. We did however not have any biologists with specific expertise on this species amongst us.

Magnus Wahlberg was therefore approached. He is a field biologist and member of the scientific committee of Compagnie des Alpes. He often works in northern latitudes and it was estimated he would know biologists with expertise that could help. He proposed Christina Lockyer and Fernando Ugarte. Kees Camphuysen was asked as he is very knowledgeable on cetaceans and on the prevalence and life history of cetaceans in Dutch waters. Andrew Foote of the North Atlantic Killer Whale ID group proposed Professor John Ford, who is one of the worlds leading authorities on killer whale biology. James McBain has helped with veterinary advice and as he has a lifetime experience with killer whales under human care, was acquainted with the inns and outs of Morgan's case, and had involvement with the only successfully rehabilitated and released killer whale so far, was asked to contribute as well. The Ministry of Agriculture proposed Mardik Leopold. Fabienne Delfour who is also a member of the Scientific Committee of Compagnie des Alpes suggested Christophe Guinet as a contributor.

All contributors have gathered their expertise while doing field work on cetaceans or worked with killer whales during field research or in marine mammal parks. Some have been closely involved in the release attempts of killer whales in the past.

The contributors were asked to give their opinion on whether release was a feasible option. They were free to give their contribution in whatever form they chose. They were unaware of each other's identity as we wanted individual and independent opinions. In order for the author to be able to write an analysis and come to a conclusion the contributions would have to be clear in the answer they provided. In case opinions were to be divided a round table conference was meant to follow this round of consultations.

The introduction was written to provide basic knowledge on killer whales so outsiders can become familiar with the problems that are involved when considering the release of a killer whale. Available information on killer whales in the North East Atlantic, where this killer whale's roots must somewhere be present was summarized.

Furthermore the rescue and particulars of this killer whale are provided. These facts are important for making a choice.

The three historic cases where release of a killer whale has been considered or executed have been described in short as they are exemplary of the potential of failure, success and related problems that have been experienced in the past.

This document was compiled by Niels van Elk who also wrote the introduction, analysis and conclusion. Niels van Elk is a marine biologist and veterinarian who works for the Dolfinarium since 1998. He is the supervising veterinarian of the rehabilitation centre and co-author of the document that outlines the Dolfinarium (SOS Dolfijn)'s strategy for helping stranded cetaceans (see reference 27).

Acknowledgements

The generous help of the contributors is kindly acknowledged. Our gratitude also goes to Andrew Foote for helping with the DNA analysis and his continuous advice. Finally we would like to voice our tremendous appreciation for Filipa Samarra, Anne-Valérie Duc and Patrick Miller of St Andrew's University SeaMammal Research Unit for their help in gathering and analysing the vocal repertoire of Morgan.

Introduction

The question at hand

SOS Dolphin has rehabilitated a debilitated killer whale in cooperation with the Dolfinarium Harderwijk. The killer whale is approaching physical health and normal weight.

It is the policy of SOS dolphin and the Dolfinarium to release successfully rehabilitated animals on the condition that release is harmless to the environment and the released animal has a similar chance of survival as any member of its species in the wild.

The question this document aims to answer is if release of the rescued killer whale should be attempted bearing in mind the welfare and survival chances of the animal once released.

At the Dolfinarium and SOS Dolfijn expertise on harbour porpoises (the most common rescued species) is present and for this species criteria are set which a release candidate has to fulfil in order that release is attempted[27].

For killer whales such expertise is not present.

Professionals with expertise of cetaceans, and killer whales in particular, have been approached and asked to give their opinion on the question whether release should be attempted. They have gathered their expertise by field research or their work in a zoological garden or involvement with previous rescue and release attempts of killer whales or all of the above.

The rescue

During the afternoon of the 23rd of June the patrol vessel “de Krukel” of the Ministry of Agriculture, Nature and Food Quality called the Dolfinarium for advice on a cetacean that seemed lost in the shallow Waddenzee. Pictures were sent and Kees Camphuysen, a Dutch biologist and expert on cetacean identification confirmed it was an *Orcinus orca.* The size of the animal indicated this was a very juvenile specimen which had no hope of survival if left on its own.
The Dolfinarium offered to send out a rescue team to attempt to catch the killer whale which was subsequently determined to be female, and take her to Harderwijk for rehabilitation. The Ministry supported this intervention and declared it was according to the permit the Dolfinarium holds for rescue and rehabilitation of toothed cetaceans.
In the early evening the team boarded “de Krukel” and was transported to the area where the killer whale was. A Zodiac was with the animal which did not dive anymore. By the time the team was on the Zodiac she was swimming in about 125 cm of water. She let herself be caught easily and did not show any distress or reaction to being pulled alongside the Zodiac and walked to deeper water where we could meet up with “de Krukel”. After an uneventful transport aboard the ship and later on the truck, she was transferred to one of the pools of the Dolfinarium.
Initial treatment consisted of saline infusions and broad spectrum antibiotics. Blood analysis revealed an inflammatory reaction, microcytic regenerative anaemia and mild dehydration. Upon admission she was offered a few fish which she took. Clinical inspections during the initial period after her admission including multiple advanced research techniques for viral and bacterial diagnostics of multiple organ systems (respiratory, digestive, and renal) revealed no other gross pathology than dermatitis and severe malnourishment. In the first week after admission, faeces mainly containing algae were found multiple times.
Dead fish was thrown into the pool and within an hour she started to take these fish. Her appetite was ravenous and her daily ration was increased over a week to 32.5 kg daily. She started to gain weight and during the first two and half months her weight increased from 430 kg to 690 kg. The latter weight is considered more or less normal for an animal of her size according to Jim McBain.

General information on killer whales

Taxonomy

The killer whale, or *Orcinus orca*, is the largest member of the family of *Delphinidae*. This family belongs to the suborder of the *Odontoceti* (toothed whales) which is part of the order *Cetacea*. Cetaceans belong to the class of mammals.

There is an ongoing debate about whether the killer whale is a single species or if this group of animals should be divided into different species. Recent genetic analysis together with observations on the different ecological specializations and behaviour of killer whales suggest at least three different species of killer whale exist. One species consists of ice-associated killer whales in the Antarctic, another species is the mammal-eating killer whales of the northwest coast of the American continent and the third species is the remaining killer whales. In this third species subspecies can be differentiated and further taxonomic classification may occur when additional data become available. Pacific mammal-eating killer whales, known as transients, have diverged from the other killer whales around 700,000 years ago, two ice-associated killer whale types diverged from a common ancestor around 150,000 years ago[1].

Different species of killer whales are present in the same area but predate on different prey and are socially and genetically completely isolated. [1,2]

Abundance and distribution

Killer whales are found in all major ocean basins but tend to concentrate at higher latitudes more particularly near cold water upwelling were food is abundant. Global population is estimated at 40,000 to 60,000 animals[3].

Life history

Females reach sexual maturity and give birth for the first time around the age of 14 years. Male killer whales begin to mature around 14 years and reach physical maturity around 20 years.

Calves at birth are around 2.5 m long and weigh 120 to 160 kg[5]. Mortality rate is quite high among calves, over 40% in their first year. A typical female produces 4 to 6 surviving offspring over a period of 25 years and then stops reproducing. Post-reproductive females may live for an additional 20 years after giving birth for the last time. Average life span for females is around 50 years and for males around 29 years[2].

Calf development

Calves are gradually weaned during their first three years of life.[4] Male and female calves stay with their mother at least until they are sub-adults in marine mammal-eating killer whales and longer up to their mother's death in fish-eating killer whales in the northeast Pacific[6,2].

Vocal development starts within days of birth, but sound production is shaped with age. A calf's first vocalizations are "screams"- loud, high-pitched calls that bear no resemblance to adult-type calls. At about two months, a calf produces its first pulsed calls with similarities to adult type calls. Vocal

behaviour appears not to be genetically determined. Calves learn which calls to make and under what circumstances. From two to six months a calf's repertoire increases.

Calves learn to hunt. In Argentina, killer whales intentionally beach themselves in order to capture southern sea lions and southern elephant seals. Juveniles of 1 to 6 years old were trained by their mother in this hunting tactic. They were not successful in capture at these ages and the mother was less successful in capture when training her siblings as compared to when she was hunting alone[7]. For other types of hunting it is unclear how old a calf has to be until it can participate successfully. For marine mammal hunters in the northeast Pacific ages 4 to 5 have been mentioned[8].
A lone juvenile fish-eating killer whale of approximately 2 years of age managed to survive for 5 months before being caught and rehabilitated. Upon capture this animal was 330 cm long and weighed 563 kg. She was dehydrated, malnourished and had a foul breath and skin condition. Another juvenile fish-eating killer whale separated from its natal pod before being 20 months old, managed to survive for five years on its own before being lethally hit by a boat. Both killer whales displayed unnatural behaviour. They refused to leave a small area, and searched for contact with boats and inanimate objects (sticks) [9].

Social organization

Killer whales live in groups. The only exceptions are male marine mammal hunting killer whales which may temporarily live on their own[6].

The advantage of living in groups comes from cooperative hunting for fish or marine mammals [6,13] and more successful location of fish prey [14]. Other advantages which have been speculated are protection from attacks upon neonates or juveniles by other killer whales, group knowledge on variation of prey occurrence and cooperative hunting techniques. In this respect the extraordinary occurrence of a long life phase after reproduction has ceased, in females, is speculated to be justified by the increased group fitness because of their contribution to group knowledge on matters of prey abundance[8].
Killer whales appear not to be territorial animals but nevertheless, on a few occasions displacement from a food resource of one group by another has been observed, as have antagonistic actions from fish-eating killer whales towards marine mammal-eating killer whales[8].

Most knowledge on the social organisation comes from research done on the killer whale communities of the northeast Pacific. Research on populations in other parts of the world indicate the principles are the same but local variations to the general patterns observed do exist or cannot be excluded[10,11,12].

The basic social unit in killer whales is the matrilineal group, or the mother with her offspring.

In fish-eating killer whales offspring stay with their mother until the mother dies. If offspring reproduce they stay with their mother and many matrilineal groups consist of three and some of four generations.

A sub-pod is a social unit containing one or more matrilineal groups that typically travel together at all times.

A pod is a social unit consisting of sub-pods that tend to travel preferentially with one another but may separate for periods of weeks or months. Pods of up to 50 animals occur.

A clan is the next level of social structure above the pod and is comprised of pods that have similar vocal dialects. All pods within a clan have likely descended from a common ancestral pod through a process of growth and fragmentation. Related dialects of clan members seem to be a vocal reflection of common ancestry.

A community is the top level of social structure and consists of pods that have been observed together at least once. The two fish-eating killer whale communities in front of the Canadian west coast have overlapping ranges but pods of different communities have never been observed together[2].

Marine mammal-eating killer whales have a more loosely organised social structure. Male offspring remain with their mother their entire lives or disperse. Female offspring seems to disperse around the time of reaching sexual maturity. Average pod size is 2.4 animals[6].

Female dispersal from marine mammal eating pods occurs around their sexual maturity and their acceptance in a new pod is speculated to be related to the reproductive potential they offer for males. In terms of group size their acceptance is a negative fact as marine mammal hunting groups profit from a small size due to the prey distribution that has to occur among members[6]. Fish-eating killer whales prey mostly on schooling fish and therefore group size poses little or no problems with respect to individual food intake.

Social life is extremely important for killer whales and an essential requirement for their well being. Biologist Alexandra Morton, who has studied wild transient killer whales in the Broughton Archipelago for decades once stated: “More than mating, more than food, more than home territories it is family around which a killer whale’s world revolves[17].”

Killer whales in the North East Atlantic

The North East Atlantic is a large area which stretches from Greenland to the Scandinavian coasts. Four surveys done in the period 1987 to 2001 give varied estimates of abundance in the area ranging from 4,413 to 26,774 animals[15].
Populations are linked to Norway, Iceland, Faroe Islands, Hebrides, Northern Islands and the North Sea[30]. Populations appear to have a high site fidelity which is linked to prey resource migration, or the migration of herring from its spawning grounds to its wintering grounds. Subsets of killer whales that feed on the Icelandic Summer Spawning (ISS) herring stock also feed on harbour seal pups around the Northern Isles. Subsets of individuals from the mackerel-eating population and Norwegian Spring Spawning (NSS) herring eating population predate on seals as well[16]. Communities are intrinsically isolated due to the resources they follow. Photo-identification data showed no movement between the Norwegian Spring Spawning herring stock and the Icelandic Summer Spawning herring stock (Foote et al. 2010). However, genetic analysis using polymorphic microsatellites indicates this is a single panmictic population. Additionally, vocal dialects are partly shared which indicates the separation might be an artefact or a recent happening which may have been caused by major migration changes of the herring stocks during the twentieth century[10]. Based on the similarity between their prey choice, hunting strategies, phenotype and acoustic behaviour, Simon et al. suggested that the killer whales in Icelandic and Norwegian waters belong to the same ecotype, which they called Scandinavian herring-eating killer whales[29].
Due to the enormous size of the area and the large off coast migrations of the populations of killer whales, information on their social structure, detailed information on matrilines, pods and family relations is not comparable to information present on the populations of killer whales along the west coast of Canada or the United States.

Killer whales associated with Norway

DNA analysis of Morgan indicates she likely originates from the population of killer whales associated with the Norwegian herring hunting population. An Icelandic origin cannot be excluded completely due to lack of available samples from Iceland. The complete mitogenome (16,400 base pairs) from one sample from Iceland analysed differed by 2 base pairs from the DNA sequence of Morgan. Additional samples from Icelandic killer whales may help resolve this ambiguity.

The most intensely studied population of killer whales around Norway is the population that hunts the Norwegian Spring Spawning herring. The herring used to winter inside Tysfjord and Ofotfjord and so

provided for twenty years good access to this population of killer whales. The size of the population has been estimated using mark-recapture of photo-identification data at 400-800 individuals in 2003[20]. From 1990 to 1993 39 pods were identified. Pod behaviour varied with some pods being observed only in winter, some only in summer and one pod year round. 7 pods were observed in summer in the spawning grounds of the herring of Møre[21].

For nine photo identified killer whale pods of northern Norway pod-specific call repertoires have been published[23]. In general the vocal repertoire of the Norwegian killer whales is far less researched and known then for killer whales around British Columbia[24].

Since 2007 the killer whales are not entering the fjords anymore on an annual basis during the winter months. Research effort has decreased. Current field research in Norwegian waters is a spring cruise in 2009 of one month duration. Three groups of killer whales were sighted[25]. During 2010 a similar research effort was done, weather conditions were less optimal and no killer whales were sighted (F Samara personal communications). Occasional pods are sighted within fjords in spring.

The most up to date information on the whereabouts of the Norwegian Spring Spawning Herring from Leif Nottestad, principal scientist of the Institute of Marine Research Nordnes, Bergen, Norway is that:

1. NSS herring has one major and some smaller wintering grounds, not all of which are exactly known. The pod we are looking for may be in any of these wintering grounds.
2. The main wintering ground is several thousand square kilometers large and is positioned up to 200 to 300 nautical miles offshore west of Vesteråen in Northern Norway.
3. Weather conditions are prevailing very rough, inhibiting the smaller coastal vessels to fish in this area in autumn and winter. A release would have safety aspects that need very careful considerations and a large vessel.
4. From October to January it is almost or completely dark.
5. The herring swim to its wintering grounds during September and leaves in January for spawning along a huge coastline in Norway from 60°N to 68°N, and spread out over the entire Norwegian Sea in early spring and summer for feeding purposes.

Previous releases and abandoned juveniles

In the expert contributions ample attention is paid to three relevant killer whales with which reintroduction to the wild was planned and two times attempted.

Luna was a male juvenile killer whale that was found alone in Nootka Sound, west coast of Canada, at the age of 25 months. Luna stayed initially in a very small area of the bay and later ventured out around the bay. In the four years he stayed in Nootka Sound he never attempted to relocate his pod despite human encouragement to do so. He developed a worrisome habit of approaching and playing with boats and water planes in a manner that it was becoming a safety concern both for the animal and the boaters. He once hijacked a party of sports-fishermen, who had run out of gas, for a full night before another vessel could set them free from Luna's playful attention. After 4 ½ years Luna was lethally hit by the propeller of a tug boat.

Springer is a female juvenile killer whale that was abandoned following the death of her mother when she was 18 to 24 months old. Although she temporarily travelled with another pod in her community, she ended up alone in Puget Sound, outside of the normal range of her community. Here observations indicated she was undernourished had a skin affliction and a foul breath possibly due to a respiratory infection. It was decided to intervene and she was caught, and treated and relocated over a distance of some 600 km. Her natal pod was known and also the time could be predicted when her natal pod would come close to the coast. Springer was held in a coastal netted pen for two days until the pod was located in the vicinity. She was then released and did manage to be accepted by her pod and continue her life in the wild[9], albeit after initial harassment in which she was covered with rake marks.

Keiko was a male adult killer whale that was caught at around 2 years of age and hence spent 16 years in several Aquaria. The last 11 years he spent alone in an aquarium in Mexico City. In 1996 a reintroduction program was started which involved his transfer to a larger concrete enclosure in Oregon and two years later he was put into a bay pen near Vestmannaeyar, Iceland close to the region he originated from. During the summers of 2000, 2001 and 2002 he was trained to follow his caretaker's boat and take open ocean swims. In the summer of 2002 Keiko swam to Norway where he arrived after being beyond observation for 27 days. Stomach samples taken just previous to his trip to Norway during a period he mingled with other killer whales, failed to demonstrate food remains and thus successful hunting. During his trip from Iceland to Norway dives were logged. These data did not allow any conclusions on the successfulness of Keiko's foraging. His veterinarian was convinced, based on the excellent condition of Keiko upon his arrival in Norway that the whale had been successfully feeding himself. Despite having had intermittent contact with wild killer whales Keiko never managed to integrate into a wild pod of killer whales. Finally Keiko swam into a fjord following a boat with humans and started to beg for food and became inactive. His caretakers and local authorities stopped the contact between the whale and outsiders and began to take care of Keiko again. In December 2003 he died of pneumonia[18,19].

Morgan's case specific information

1. Age estimated at 18 to 24 months upon admission (length upon admission 343 cm).

2. Caught without a group of killer whales being sited within hundreds of kilometres in the adjoining time frame despite the weather being very calm. Closest sighting was a lone killer whale in the east sea (on the other side of the Skagerrak, Denmark), source Kees Camphuysen, NIOZ Texel Netherlands.

3. Caught in an area where normally no killer whales are present, the last killer whale observed off the Dutch coast was in 1963.

4. No gross pathology detectable beside skin abrasions and inflammation and severe undernourishment.

5. Attempt at photo ID with the North Atlantic Killer whale ID group has failed (Andrew Foote, University of Copenhagen, and NAKID).

6. Genetic analysis indicated Morgan is related to the Norwegian sub-population of killer whales. It cannot completely be excluded Morgan originates from the Icelandic sub-population of killer whales. (Andrew Foote).

7. Analysis of her vocal repertoire indicates she originates from the killer whale population that hunts the Norwegian Spring Spawning Herring.

8. Morgan was admitted on 24th of June. In the event that it is decided that release is feasible, then the organisation needed, which includes permits, funding, organisation at site of release and development of a contingency plan in case Morgan's release creates severe problems for her, makes it unlikely for the release to take place before next spring (2011).

9. Imprinting on humans has taken place and was unavoidable as she has to be handled and as she, being a very juvenile killer whale, needs social contact and activity for her psychological well being.

10. Vocal data again indicated Morgan originated from the Norwegian population of killer whales that hunt for Norwegian Spring Spawning herring. She is likely closely related to the "NP"pod although not originating from this pod based on present data. Due to lack of data on the vocal repertoires of this population it is not possible to give more detail on her origin than the entire population of NSS hunting killer whales (Patrick Miller, personal communication)[28]

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Expert contributions

Kees Camphuysen

Prospects for post-rehabilitation release of a juvenile Killer Whale stranded in The Netherlands
CJ Camphuysen, Royal NIOZ
A single, young immature killer whale *Orcinus orca* was captured in the Wadden Sea (Netherlands) and transported to Harderwijk for care, treatment and rehabilitation. Question now is: what next?

1909	Noordwijk aan Zee	M	450	young male, skeleten preserved	Van Deinse 1931
1918	Egmond aan Zee			probably young female	Van Deinse 1931
1918	Zandvoort			no details	Van Deinse 1931
1921	Vliehors, Vlieland			TL500 (no tail), tooth collected	Van Deinse 1931
1921	Wieringen	M	600	badly decomposed	Van Deinse 1931
1926	op zee gevonden, Vlaardingen	M		found in sea, dragged by ship to Vlaardingen	Van Deinse 1931
1931	Terschelling p10	M	575	harbour porpoises in stomach	Van Dieren 1931
1935	Wissekerke, N Beveland	M	390	young male	Van Deinse 1946
1936	Noordwijk aan Zee (7km Nv)	F	520	badly decomposed	Van Deinse 1946
1937	Texel p16	F	500	skull ZMA, tooth Ecomare	Van Deinse 1946
1937	Ameland Noordzeestrand	M	650	as two strandings in Schultz 1967	Van Deinse 1946
1943	Terschelling p18	F	535	pregnant female, live stranding, embryo 125 cm TL	Van Deinse 1944
1943	Terschelling p19			related to earlier stranding of pregnant female?	Van Deinse 1944
1945	Noordwijk aan Zee		600	no details	Van Deinse 1946
1947	Schiermonnikoog p12	M	578	no details	Van Deinse 1948
1953	Texel De Koog p16-17		500	old skeleton, not recent?	Van Deinse 1954
1958	Terschelling			in letter to Van Deinse, not fully confirmed	Kompanje 1995
1959	Zoutkamp Lauwerszee		600	afloat for 63 days, than washes up	Van Deinse 1960
1961	Goeree	F	550	lungs full of feathers	Van Deinse 1962
1963	Texel p23-24	M	550	well documented stranding	Van Deinse 1964
1963	Noordwijk aan Zee	F	500	last known stranding	Van Deinse 1964
2009	Scheveningen			dark brown skull, not recent	Naturalis

Killer Whales in the southern North Sea

The arrival of a young killer whale in The Netherlands was the first properly documented case of any sightings or strandings in the southern North Sea (The Netherlands or Belgium) since 1963 (excluding the recovery of a subfossil skull in 2009; Kompanje 1995, Camphuysen & Peet 2006, Van der Meij & Camphuysen 2006).

The most recent sighting dates back to 4 August 1947, when two killer whales were sightings by fishermen north of the Wadden Sea islands (Camphuysen & Peet 2006). This brings us to a period of over 60 years without a reliable sighting of a Killer Whale in the Southern North Sea, despite extensive surveys for seabirds and marine mammals since the mid 1970s (Reid & Camphuysen 1998, Reid *et al.* 2003).

Killer Whales in the NE Atlantic Although killer whale numbers in the North Atlantic appear to be greatest in sub-Arctic and Arctic waters, the distribution of this species extends south to the Azores, Canaries, NW Africa, and western Mediterranean. Killer whales are common around Iceland, off NW Norway, around the Faeroe Islands, and in the northernmost part of the North Sea. Sightings around Orkney and Shetland are frequent and substantial numbers are found within the Minch (W Scotland), off the Outer Hebrides, within the Irish Sea, off Ireland and in the Bay of Biscay. Sightings in the central North Sea and within the English Channel are extremely rare (Reid *et al.* 2003).

Group structure and social interactions. Many odontocetes tend to group together in structural social groups, characterized by long-term association among individuals (Berta & Sumich 1999). The size of the school may vary with species, location, season and activity patterns. Although the composition of schools may fluctuate even over the course of a day, many associations are relatively long-term. The mother-calf bond may persist for many years.
In killer whales, individuals exist in small stable units known as pods. These pods are characterized by their specific dialects, foraging strategies, as well as by their individual members (Baird 2002). Killer whale pods are matrilineal social groups consisting of an older mature female, her male and female offspring, and the offspring of the second generation's mature females. The mother-offspring bond remains strong into adulthood for some male (and less often for female) offspring (Baird & Whitehead 2000). Mature males remain with the pod into which they were born, and in resident killer whales off Vancouver Island, movement or exchange of individuals among pods has not been documented (Briggs *et al.* 1990). Some males from transient killer whale populations off Vancouver Island disperse from their maternal pod and appear to become "roving" males, spending some of their time alone, and occasionally associating with groups that contain potentially reproductive females (Baird & Whitehead 2000). These males appear to have no strong or long-term relationships with any individuals. Females that disperse from their natal pod appear to be gregarious but socially mobile. Differences in social organization from the sympatric fish-eating resident killer whales (where no dispersal of either sex occurs) likely relate to differences in foraging ecology. Transient killer whales maximize per capita energy intake by foraging in groups of three individuals, whereas no such relationship has been documented for resident killer whales. The typical size of groups consisting only of adult and subadult whales that were engaged primarily in foraging activities confirms that these individuals are found in groups that are consistent with the maximization of energy intake hypothesis. Larger groups may form for (1) the occasional hunting of particularly large prey, for which the optimal foraging group size is probably larger than three; and (2) the protection of calves and other social functions.

Discussion The origin of the stranded, young whale is not known. The northern North Sea (Norwegian or Scottish waters) may seem the most likely area where this whale came from, but this is pure speculation and would require verification from DNA analysis. Unfortunately, killer whales within Europe have not been particularly well studied until recently and our knowledge on pod structure and local, more or less discrete (ecologically distinct) populations is very incomplete. With knowledge obtained mostly in the NE Pacific (studies of resident and transient killer whales around Vancouver Island), it is clear that the social structure of pods is such that a successful release of a young, dependent whale into the wild is possible *only* when a pod would be prepared to accept this individual as a group member. From an expert in this field:
Bob Pitman (in litt 17 Sep 2010) *"Unless you have a suitable group of killer whales to reintroduce this animal into, I don' think it will have much chance if it is released in the wild. There was a calf in British Columbia some time ago that got separated from its pod so it became attached to people and boats - very social animals. A tugboat backed over it and killed it. It would be better to keep this animal in captivity, as an ambassador, unless some effort is made to determine which ecotype of killer whale it is (mammal-eaters have died in oceanaria rather than eat fish) and perhaps relocate its original family group. Not easy but perhaps doable."* Robert L. Pitman Protected Resources Division Southwest Fisheries Science Center National Marine Fisheries Service National Oceanic and Atmospheric Administration 8604 La Jolla Shores Drive La Jolla, California 92037
The (female) animal was young when it came ashore and would have been still dependent for years to come. A release into the wild away from a social group of killer whales would be the same as euthanasia, except that it would die probably unseen somewhere at sea. Apart from logistic difficulties and excessive costs to transport this whale into an area where killer whale pods occur more or less frequently, its chances seem utterly remote with regard to acceptance within such a unit. We don't even consider that practical difficulties to bring the whale near some pod in the open sea! Finally, treatment and care will or at least *may* have changed this whale such that it is now attached to people and perhaps boats. The experiences with "Free Willy" have demonstrated what could happen in such

a condition (frequent entries of harbours and attending ships, incapable of efficient self-feeding, no pod attachment; leading to death).

Given the fact that “dolphinariums” as cetacean zoos are acceptable conditions to keep and display cetaceans for a large human audience, this whale could perhaps better be seen as an appropriate “ambassador” and kept in captivity for the rest of its live, in the best possible conditions (space, accommodation, other killer whales).

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John Ford

Comments on options for the future of the juvenile killer whale ‘Morgan’

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November 10, 2010

The following highlights some of the key issues that I believe are important in considering whether the juvenile killer whale Morgan is a viable candidate for release to the wild, based on two similar cases in British Columbia (A73 ‘Springer’ and L98 ’Luna’), as well as from my experience studying both captive and wild killer whales. Although reunification of the whale with its group in the wild would be desirable, there are important concerns that must be considered in order to determine whether attempting a release would be in the whale’s best interest.

Social group identity: Killer whales are a highly social group-living species and are seldom found alone. The survival and psychological well being of an individual reintroduced to the wild is dependent on its acceptance into a social group.

Rehabilitation of juvenile killer whales back to the wild is possible but it’s complicated by the social structure of the species. Killer whales generally live in stable matrilineal groups with limited dispersal from the natal unit (mother and siblings). In at least some populations (e.g. the fish-eating ‘residents’ in

NE Pacific), individuals stay in the natal group (pod or matriline) for life - such groups are thus closed both to immigration and emigration. In other populations (e.g. mammal-eating 'transients' in NE Pacific), females may disperse upon reaching reproductive age (12-15 yrs) and join other groups for extended periods of time.

As a result of this social system, a juvenile killer whale released back to the wild is most unlikely to be accepted into an unrelated social group. Population and/or group identity is encoded in dialects (distinctive group-specific calls) that are learned by young whales growing up in the natal group. These dialects appear critical for population and kin recognition. A released whale is only likely to be recognized and potentially accepted by a social group if it has a full-formed vocal repertoire. The juvenile killer whale Springer travelled briefly with an acoustically unrelated pod in her community but this did not persist and she was found alone some months later.

Genetic analysis suggests that the juvenile killer whale Morgan is from a population of herring-eating killer whales found in the Norwegian Sea. Recent comparisons of Morgan's vocalizations with calls recorded from killer whales in this region support this suggestion. This population appears to have group-specific dialects and is likely to have a social structure with long-term stable matrilines with minimal dispersal. Although Morgan's calls closely resemble those produced by one or two groups in this population, it is not clear if either of these or some other group contains her natal matriline.

Habituation: It is important for successful rehabilitation to the wild that the animal is not habituated to humans. In the case of the successful rehabilitation of the juvenile whale Springer to its pod, considerable efforts were made to minimize contact with people especially when the whale was fed prior to release. This reduced the chance of the whale associating people with provisioning and avoided the development of social dependency on people. In contrast, the solitary killer whale Luna became dependent on people for social interaction and in so doing became a nuisance and threat to human safety by its vigorous contact with small boats. Such interactions proved extremely difficult to manage and escalated over time. This ultimately led to the accidental death of Luna through contact with a ship's propeller. Having been socialized and provisioned by humans, it is highly likely that Morgan, should she be released to the wild, would be similarly attracted to people in boats for food and social contact.

Hunting skills: Dietary specialization is common in killer whale populations and appears to be learned behavioural traditions. In other words, killer whales are not born with a predisposition to forage for particular prey types (e.g. mammals or fish) but instead learn prey preferences and specialized hunting tactics from others in the natal group. This learning process likely starts at weaning and is facilitated by cooperative foraging and food sharing within the matrilineal unit. It is probably important but not necessarily critical to survival of a released juvenile killer whale that it has learned adequate hunting skills prior to becoming separated from its natal group. The whale Luna, separated from his pod at less than 2 years of age, was able to survive by catching fish that were not typical of its natal group's or population's diet. It is unknown whether Morgan would be able to catch sufficient food to survive on her own if released. However, as she was highly emaciated when rescued it seems likely that she was unable to adequately feed herself.

Summary and recommendation

In my opinion there is a low probability that Morgan could be successfully rehabilitated back to the wild. Successful rehabilitation would require reunification with her natal group or long-term acceptance and integration into another group. Although her probable population of origin and potentially related pods have been identified, her natal group is not known. Given the current distribution patterns of this population in mostly offshore waters of the Norwegian Sea, the chances of locating these related pods then coordinating her transport and release in their presence appear to be remote and logistically unfeasible. Even if she was to be released in the vicinity of these pods and these pods do contain her natal group, reunification would not be guaranteed. Unlike Springer, Morgan has spent considerable time in human care in an aquarium setting, which no doubt have altered her natural behaviour and potentially her acceptability to her group or a related group. It is also unlikely that she would be accepted into an unrelated killer whale group due to generally closed nature of the species' social structure. It is highly probable that her current dependency on humans for social interaction and food would continue post-release and she would be strongly attracted to people and boats, with its attendant risks.

Releasing Morgan to the wild in the hope that she finds and reunites with her natal group or integrates into another killer whale group would involve substantial risk and would clearly not be in her best interest. She has already shown that she is likely incapable of provisioning herself adequately and she would probably suffer and die alone. The best option for this whale is to be cared for in an appropriate facility with the highest standards of animal husbandry, preferably in the company of other killer whales in order to meet her social needs.

Christophe Guinet

According to my knowledge on killer whale biology, social behaviour and foraging ecology I can affirm you that the release of such young individual without any knowledge on its original social unit and community will be equivalent to a death penalty.

- most killer whales are unable to forage efficiently by themselves, and it is even more true in the case of a young killer whales which do not master properly some indispensable foraging skills for its survival in the wild. From the work we conducted on Crozet we were able to show that 5-Year old Killer whales were still requiring the assistance of a pod member to be able to forage efficiently (catch seal). Those foraging skills are learned through social transmission.

- Furthermore we found that for pods which had a group size of 1 to 2, tend to associate much more to other killer whales pods of the same population. Many pods had their pod size reduced due to sur-mortality associated with illegal fishing. In pods for which only one or two individuals survived, they tended to always be observed associated with other pods however these associations are not long term. These individuals associate with many different groups over periods of time ranging from days to weeks. The fact that we don't see pods with less than 2 individuals by themselves suggest that they are unable to forage efficiently and to maintain a sufficient foraging efficiency (likely) they have to associate with other pods, but the fact that they always change their association pattern compare to the other pods which are extremely stable over time suggest that they are only "tolerated" in a pod for a limited amount of time.

So it is unlikely that this young killer whale will be able to find its original family and we have no idea to which community she belongs, so the chances of success (as observed in British Columbia in one case and in which an orphan killer whales were adopted by its aunt after being separated from its original pod for several weeks) are nil in this case.

So either this whale should have been left originally, but currently the only options are either to maintain her in captivity or in semi captivity but it will be necessary to feed her.

Please don't hesitate to contact me if you have any further question. But honestly I think that this point of view will be shared by any killer whale specialist who has a long experience with these animals.

Mardik Leopold

Orca Morgan: finder's keepers?

Mardik Leopold, IMARES

Killer whales are very rare visitors to the central and southern North Sea, south of 58°N (Reid et al. 2003). Yet, a live specimen turned up in the Dutch Wadden Sea in June 2010. Killer whales are rare in the Netherlands, but not extremely rare: Camphuysen & Peet (2006) mention 30 earlier cases (mostly before 1960). Most “Dutch” killer whales however, were dead and stranded; life killer whales are very

rare and very few (if any) killer whales that reached our country alive survived their visit. Most stranded animals had been dead for some time before they finally stranded on the Dutch coast and probably originated from the northern North Sea (Camphuysen & Peet 2006). This would be in agreement with the fact that killer whales are found more frequently in Scotland, Norway and Denmark, both alive and dead.

People living near the Dutch coast were usually quick to kill any live whale that came their way, including killer whales. In contrast to these old habits, the killer whale that approached our coast in 2010 was saved and ferried to the Dolfinarium in Harderwijk. The animal was a very weak, emaciated young female, named Morgan shortly after arrival in Harderwijk. Dutch law on wild animals taken into captivity states that such animals should be released into the wild again after they are considered healthy, unless release is clearly not in the best interest of the animal. This would be the case if such an animal would be unable to survive in the wild. Release should be done in such a way, that would give the animal a fair chance of survival, e.g. by bringing the animal back to its former home range. Keeping animals in prolonged captivity should be done in such a way that would facilitate natural behaviour and that would mimic natural environmental conditions as closely as possible. In the case of a killer whale, a highly social animal of the open ocean, this would imply keeping her in the company of one or more conspecifics, in a suitably large holding facility (a very large tank). At present, such a facility is not available in the Netherland, and neither are conspecifics. The question thus arises: what should be done with Morgan when (if) she is proclaimed healthy again?

Considerations on the population ecology of killer whales

Killer whales occur in all of the world's oceans. Several "forms", "ecotypes", "morphotypes" or even full species of killer whale have been proposed to exist (Pitman & Ensor 2003, LeDuc et al. 2008; Foote et al. 2009a, Morin et al. 2010; Pitman et al. 2010). At least two different types (Eastern North Atlantic types ENA1 and ENA2) are found between Iceland, Scotland and Norway (Morin et al. 2010). Morgan seems to be a ENA Type 1 killer whale; given the facts that her eye patch has a parallel orientation to the body axis, that the anterior end of the eye patch is in front of the blowhole, the apparent beginning of tooth wear and the number of 12 teeth in the lower jaws visible on photographs published by the Harderwijk Dolfinarium (cf Foote et al 2009a, Supporting information).

Photo-ID studies have shown that animals regularly move between Iceland and Scotland, but such evidence for movement between these two regions and Norway is still poor. Information on shared "dialects" suggest that killer whales across northern Europe do in fact regularly meet, possibly in winter, offshore, somewhere between Iceland and Norway (Foote et al. 2009b). Offshore, winter diet may partly consist of fish scavenged behind fishing trawlers (Couperus 1994) but which killer whales are involved and how social interaction works in winter is not yet known. Norwegian killer whales are probably largely fish-eaters (e.g. Similä et al. 1996), but Icelandic animals may switch between seasonal fish-eating in Iceland, and seasonal seal hunting in Scotland (Bolt et al. 2009; Foote et al. 2009b). There is very little information on population integrity, population sizes or trends in numbers, but there is also little evidence that killer whales in Europe are endangered (Reid et al. 2003).

Killer whale Morgan has been separated from her natal population, or separated herself. Morgan would have died if she had not been taken into captivity and was thus effectively removed from her population. Extra-limital wanderings, strandings and mortality are part of natural killer whale biology (as evidenced by recurrent strandings outside the normal range of the species). That some whales get out of their normal range and die, is thus a fact of live. Clearly, the species/ecotype concerned will not go extinct, or even suffer significant population decline, without Morgan returning.

Considerations on the genetics and social biology of killer whales

Killer whale Morgan most probably originates from Norway but an Icelandic origin could not be excluded (based on DNA analysis by Andrew Foote; Niels van Elk in *litt.*). A more precise georeference is unlikely to be achieved in the near future. There is thus a very high degree of uncertainty as to the former home range of Morgan. No match has been found between Morgan and pictures kept in photo-ID databases that would allow linking Morgan to a specific pod or home range. It is thus impossible to release Morgan with any degree of certainty into her former home range or natal pod.

Killer whales are highly social animals. Especially young females are very unlikely to leave their natal pod and survive. Across-pod mating probably regularly occurs, but females show a strong tendency to remain with their natal pod. Releasing Morgan into the wild, but not into her former pod would thus not be the same as giving her back her former live, as there is no guarantee (or even a good probability) that she would find back her former pod. Previous cases of setting captive killer whales free, even when the former home range was known, have not been biologically successful (e.g. Simon et al. 2009 on the release of "Keiko"). Admittedly, Keiko that had been taken into captivity at approximately the same age as Morgan had been kept for many more years than are intended for Morgan, should she be released. On the other hand, Keiko had received years of training aimed at providing her with a good chance of at-sea survival, and such a long training would not be available for Morgan as animals taken from the wild in the Netherlands should be released within one year after capture.

Questions have been raised in the Dutch Parliament (Partij voor de Dieren, 24-06-2010), asking the government not to equip Morgan with a tracking device after release. The answer by the appropriate Dutch Minister (Verburg, 13-07-2010) states that there are no plans for putting a transmitter on Morgan. Without such a device, and without clear markings (put) on the animal that would allow later photo-ID evidence of successful restoration into the wild, setting the animal free somewhere at sea, would be a step into the complete unknown.

Considerations on the health status of Morgan

A lone, young female killer whale far removed from her probable natal area, is remarkable. Killer whales and especially young females, are not supposed to get away from their natal pod. Killer whales are very social, and very vocal animals, that live in a world of sound (Hoyt 1990) that allows communication over considerable distances. Even though individuals might leave pods temporarily they should have no trouble finding back their pod. Reasons for permanent separation may be that the lone animal is not healthy (e.g. deaf or physically unable to keep up with the pod), mortality of the whole pod but the remaining loner, or severe disturbance, e.g. acoustic disturbance separating the loner from the pod permanently. Should Morgan be deaf, or otherwise be physically or socially unable to team up with conspecifics, it would be unfeasible to set her free, hoping she might find back and subsequently live with her natal pod. The same is true should the remaining pod members all be dead but it seems impossible to establish this possibility. The same unfortunately is probably true for the possibility to assess if pod separation happened through severe (human) disturbance such as excessive underwater noise production near Morgan's former pod.

Considerations on the logistics of prolonged captivity

The tank in which Morgan is currently kept is best considered as a first-aid facility. It is too small and unsuitable for prolonged captivity. Thus, should Morgan be kept in the Netherlands, a larger, fully suitable holding facility should be built. Given that killer whales live their normal lives in the company of other killer whales, a mate should be made available for Morgan. There is no other captive killer whale in the Netherlands, so an additional animal should be important from abroad, to provide company for Morgan. Capturing a healthy wild killer whale for this purpose is out of the question and waiting for another stranding to happen will probably take "for ever". The scenario of keeping Morgan in the Netherlands should therefore be considered as not very realistic. Moreover, although personnel in Harderwijk have ample experience with keeping various cetaceans, experience with keeping killer whales is largely lacking. Keeping killer whales is not entirely free of certain risks to the trainers involved and keeping captive killer whales alive and well is an art that has taken the leading companies in this field decades to achieve (if at all). Apart from the need to acquire another killer whale, there would probably be a need to attract trainers from abroad, with the necessary experience.

If both options of setting Morgan free and keeping Morgan in the Netherlands are deemed unrealistic, a third option would be to ship her out to another killer whale keeper. Killer whales are kept in captivity in a limited number of facilities around the world that at least can muster more experience with keeping these animals than can the Dutch. Shipping Morgan out to a facility abroad would also solve the problem of giving her company. It would probably also improve her living conditions in captivity, compared to conditions here. When brought in contact with other captive killer whales, she might eventually breed and in doing so, add further variation to the gene pool of captive killer whales. All this seems to add up to a better situation for Morgan than would be possible in the Netherlands where conditions for prolonged captivity are less than ideal. On the other hand, many people would consider

setting Morgan free the most natural, and thus the best option. Given the considerable and likely unsolvable problems with restoring Morgan to her natal pod and former healthy (?) wild condition, setting this killer whale free probably will not work for her. In a final response to sentiments that demand Morgan to be set free and let nature have its course, it should be noted that the most natural way to deal with Morgan would have been to leave her to die in the Wadden Sea, when she first arrived. If all three scenarios (setting her free; keeping her in the Netherlands or shipping her out to another facility) are considered impossible or undesirable, the only remaining option is to put her down. This would, however, be a tragic end to her and a waste of good intentions and resources. Putting her down after nursing her back to health would mean that she should not have been taken into captivity in the first place. Even the very possibility of this fourth scenario should be an incentive to consider future cases of rescuing exotic marine mammals.

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Christina Lockyer

My own personal opinion, taking into account all the above points under *Morgan's case specific information*, is that this animal is not a candidate for release back into the wild - if we are considering it from the viewpoint of the animal's welfare and likely survival. From a purely scientific viewpoint one could argue for a VHF- and satellite tagging of the animal pre-release to conduct an experiment to see if such releases are ultimately viable. However, I am not sure this is ethical really. The big question is therefore, where she can be housed - possibly for many years (killer whales can live 30+ yr). Clearly she would need company of other killer whales (not necessarily her own tribe - if we even knew), and also space enough in a pool for full mobility. I am willing to continue discussion on this last point.

Additional comments:
In view of the imprinting on humans while in captivity, Morgan is very likely to associate with boats if release takes place. This behaviour is unnatural for a free-living animal, and also is likely to increase dependence on humans for food supplements rather than develop foraging skills which may be poor in the light of her young age when rescued, and also hinder possible contact with other killer whales. As it has been reported for many cetaceans that become sociable or associate with boats, the probability of a serious accident – both to boat and whale – is very likely at some point (Lockyer, C. 1990. Review of incidents involving wild, sociable dolphins, worldwide. In, *The bottlenose dolphin* eds J. S. Leatherwood and R. Reeves, pp.337-53, Academic Press).

I reiterate my opinion that Morgan is not a likely candidate for release. I would therefore prefer to contribute to any discussion in the future on how and where Morgan can be maintained. She might make a suitable animal for participation in research because of her now familiarity with humans, and thus contribute in a useful way to understanding some issues regarding for example, growth and maturity of killer whales. Other acoustical and behavioural experiments may be possible in the future with training. The main issue is where she can be housed.

As a final comment and after thought, even though we may be able to assign Morgan to a population from genetical and acoustical analyses, we have absolutely no information regarding her original family pod. Although unlikely, perhaps Morgan became alone because something fatal happened to some or all of the rest of the pod members.

James McBain

The subject of this letter is a killer whale, known as “Morgan,” currently being rehabilitated by the Harderwijk Aquarium. The whale was found weak and malnourished in the waters off the coast of the Netherlands. The rescue staff collected her from the sea on June 23, 2010 and transported her to the Harderwijk Aquarium for health assessment and medical treatment. Morgan was determined to be a female ~350 cm overall length and weighed ~ 450 kg. Based on data from captive born killer whales, the length is typical of a 1-2 year old. This same data suggests that Morgan was grossly underweight which confirms the onsite observations of Dr. Niels van Elk. Morgan is currently undergoing rehabilitation at the aquarium and is responding well to therapy.

Once Morgan has her health restored, the time will come to make a decision regarding what is best for her future. Based on what I am told regarding the lack of knowledge of Morgan’s pod, my experience with killer whales and the results of the very few attempts to reintroduce killer whales to the wild; I believe the best outcome for her is to remain in the care of man. Young killer whales have been shown to readily adapt to life in an oceanarium. She could have the opportunity to live with other killer whales and integrate into an oceanarium pod as others have done. Granted, her life in the care of man would be different from life in the wild but we can make it a good life. Morgan’s life in the wild was most certainly over without human intervention. Humans can continue to provide her with a good life without the threat of starvation. If we wish to examine alternative plans, the remaining option is reintroduction to the wild. There are three apparent possibilities for reintroduction: 1) return to her natal pod; 2) return to any pod that will accept her; 3) return to the sea and let her find her own way.

I would like to dispense with the last plan immediately. In general, killer whales are a social species and should not be expected to thrive while living alone. If there is no reasonable certainty that Morgan could be accepted by a pod, reintroduction has little chance of success. Returning Morgan to the sea and expecting her to survive without a pod is not acceptable. She failed the first time; there is no reason to believe that she will succeed the second time without the support of a pod. There are those who hold the belief that it is better for an animal like Morgan to die in the wild than to live in the care of man. As a veterinarian that has worked with killer whales for the better part of 30 years, I find that kind of thinking reprehensible. I also doubt that Morgan would agree with that proposal. There is an additional concern which we must keep in mind. Morgan was starving when she was rescued. She

has received medical assistance and food from humans in the process of her rehabilitation. If she was alone at sea looking for food or companionship, there is every possibility that she would seek humans. This behavior would have significant potentially negative ramifications for her as well as the humans.

The case of a young male killer whale in British Columbia known as L-98 or "Luna" is worthy of review if we wish to understand the problems of a young lone wild killer whale that has an affinity for humans. L-98 was an approximately 2 – 3 year old male killer whale that had become separated from his pod and found himself alone in the waters of the west coast of Vancouver Island. In his apparent search for social interaction, he developed an affinity for humans and boats of all sizes. He was friendly to people and destructive to small boats frequently damaging rudders and depth sounders. He would often surprise boaters by pushing their boats around and in some cases nearly capsizing them. There was a fear that he may some day cause loss of human life through his antics. Intervention and reintroduction was considered because his pod of origin was well known and easily accessed in the San Juan Islands of the State of Washington. For political reasons, no action was undertaken other than volunteers trying to keep boaters away from the areas where he was known to be. In the end, L-98's affinity for boats got him killed as he was caught by the propeller of a large tugboat. Intervention had offered the best chance for saving his life. If reintroduction had been considered unreasonable, there was still the option to move him to an oceanarium where his affinity for and interest in humans would have been a positive. It is unfortunate that Luna (L-98) was not given that chance.

Let us consider the possibility of reintroduction of Morgan to her natal pod and her mother if she still survives. The case of A-73 has some similarities to Morgan's and some significant differences that are essential to understand.

A-73, also known as "Springer," is to my knowledge the only rescued and rehabilitated killer whale successfully reintroduced to the wild. The story of A-73 varies from that of Morgan in some significant ways. I was personally involved in the A-73 case so I have more than a passing familiarity. Like Morgan, A-73 was a 1 to 2 year old female killer whale. She had become separated from her natal pod by several hundred kilometres. She was malnourished but not as severely underweight as Morgan. How did a young female killer whale become alone and so far from her pod? A-73s pod is well known to researchers that have long studied the pods of Puget Sound, the coast of British Columbia, and Alaska. It was known that A-73 was with her mother when they were seen separated from their pod. The disappearance of A-73's mother after separating from the pod leads me to believe that illness caused her mother's separation from the pod and was responsible for her later disappearance. Upon the death of her mother, A-73 was alone without her mother or her pod. She was later reportedly observed with an animal from another pod but was again found alone in the waters near Seattle, Washington in the USA. This put her far from the home range usually frequented by her pod. In contrast, I am told that we know virtually nothing about Morgan's history prior to her appearance off the Netherlands coast. So, we are missing the information that proved to be critical to the successful reintroduction of A-73. We had the additional benefit of knowing the probable location of A-73's pod during the summer months. As luck would have it, A-73 was found in reasonable but declining health in an area that had abundant resources for rehabilitation and reintroduction. A-73's rehabilitation and health assessment was short, lasting only a few weeks. With knowledge of her pod identity and its location, she was transported over 600 kilometres to a pre-release holding facility in the area of her natal pod's summer range. Within days, A-73's pod was near the pre-release facility so she was released to interact with them. She was ultimately accepted by her natal pod and in the years following her reintroduction, A-73 has often been seen in the company of her pod. During her time alone at sea, A-73 had gained an affinity for small boats. There was a concern that this behavior could cause problems after her reintroduction. There have been incidents reported where a whale known to be her aunt has been seen steering her away from potential contact with humans. This maternal intervention by her aunt may be an important factor in the ultimate success of the reintroduction of A-73. When Springer was accepted by her natal pod, many including me believed it was a miracle. With so many things that could have gone wrong, everything went right. A-73's reintroduction will become biologically significant when she gives birth to a healthy offspring.

It is easy to see that the differences between A-73 and Morgan become significant when it comes to planning and executing a reintroduction. The knowledge of A-73's natal pod and its location, as well as the availability of a safe pre-release holding facility in the area frequented by her pod, made the attempted reintroduction feasible. In the case of A-73 with all those advantages, I still considered the outcome a miracle. Based on my own experience and what we learned from the reintroduction of A-

73, I do not consider it realistic to plan the reintroduction of Morgan to the wild unless the A-73 model can be reasonably duplicated. There is the question, however, of the possibility that she might be accepted by another pod.

The well reported case of Keiko the killer whale was an attempt to return a long term captive killer whale to the wild. It is useful to acknowledge that this attempted reintroduction had strong political motivation and was not necessarily conceived to determine what would be best for Keiko. This case is not a perfect match to Morgan but there are lessons in the story. Some may point to this attempted reintroduction as a successful model. Upon examination, the case of Keiko is not an example of successful reintroduction. It points up the pitfalls associated with attempting to return a single killer whale to the wild without knowledge of pod of origin. It was known that Keiko originated from the seas around Iceland. Since Keiko's pod of origin was not known, it was initially thought that his joining any pod would be considered a success. In the end, it was decided that if Keiko could survive in the wild as a lone animal without a pod that would also be considered a success. Best estimates are that the attempted reintroduction cost in excess of twenty million US dollars. Given numerous opportunities involving contact with wild killer whales, Keiko never joined a pod. He demonstrated that he preferred to remain in the care of humans. Since there was good evidence that he could catch adequate food to maintain his body condition, Keiko was eventually abandoned (released) to fend for himself. Observations after his release indicated that he was feeding but did not join a pod. Keiko swam from Iceland to Norway where he again made contact with humans. He chose to remain where there were people; it could be assumed that his past experience had taught him that people were a dependable source of food and interaction. It should be noted that there were extensive prerelease efforts to remove his dependence on humans for food. Eventually his caretakers moved him to a site in Norway where public access was controlled. Shortly after the move, he became ill and died. He was buried with out a post-mortem examination into the cause of his death. Keiko was an example of a release, not a reintroduction. In the end it was not a success but it still contains many useful lessons. I would hope that we all have something better planned for Morgan.

If reintroduction is our plan for Morgan, it is important for us to remember what we have learned from L-98, Keiko, and A-73. Morgan's acceptance into any pod is ultimately not up to us, the decision would be made by members of the pod and Morgan. We cannot force them to do what they do not want to do. Morgan has apparently already begun to thrive in her new home at the Harderwijk Aquarium so it is my opinion that she should remain there until she is completely healthy. Once she receives a clean bill of health and her caretakers believe she is ready for a new challenge, I would recommend that she be moved to an oceanarium facility where she can live in the company of other killer whales. In my judgement, the introduction to other killer whales should be undertaken as soon as she is deemed ready by the staff at the Harderwijk Aquarium but certainly prior to her fourth birthday.

I have written this letter with brevity in mind so many of the points made lack extensive discussion. I would be happy to discuss further, any questions that arise regarding details of the letter or future plans for Morgan. I hope to be able to contribute to a positive outcome.

James McBain DVM

Fernando Ugarte

I can not see how a release attempt, given the circumstances, could be successful. Furthermore, it is likely that the experience of being released will be unpleasant for the whale, since in order to learn to feed and take care of herself, she would undoubtedly experience hunger and fear.

If the welfare of the animal is the main priority, the focus should be on finding the best solution for a healthy and active life under human care. A large sea-pen is probably the best option, especially given the large size of adult killer whales.

A perfect sea-pen in the shallow and exposed North Sea would probably require some design involving digging and building structures. There must be plenty of naturally suitable bays and fjords in places such as Scotland, Ireland or Norway.

Analysis and conclusion

All contributors are opposed to a release into the wild of Morgan. (Ford; Camphuysen; Leopold; Guinet; Lockyer; Ugarte; McBain)

Concerns over successful introduction and acceptance of Morgan into a pod in the wild were mentioned by most contributors (Ford, Camphuysen, Leopold, Guinet and McBain).

Lack of hunting skills and capability to successfully forage were mentioned by four contributors (Ford, Ugarte, Guinet, McBain).

Habituation to humans was seen as a potential problem by four authors (Ford, Camphuysen, Lockyer and McBain).

Leopold mentioned the possibility that a catastrophic event with Morgan's pod or a mental or physical health problem of Morgan may have caused her separation from the pod.

Camphuysen touched upon the concern that Norway with its killer whales mainly located off-shore presents an extremely difficult environment for a release attempt.

In conclusion, no data are present on the history or identity of Morgan's pod. The killer whales of the region where she may originate from are currently not monitored in a structural and scientific manner. There is no knowledge on the cause of her being found alone. No disease has been found which may explain her separation. She was emaciated and defecated algae during the first week besides demonstrating a huge appetite, indicating she had been extremely hungry and unable to feed herself. Acceptation into a pod is of paramount importance for her welfare and survival chances. Only her natal pod is a potential candidate that provides an acceptable chance of introducing her successfully given what is known about the social structure of killer whales.

Research on her DNA and vocal repertoire indicate she originated from the population of killer whales that hunt the Norwegian Spring Spawning herring. This population consists of 400 to 800 animals. Two issues now have to be considered.

The first is that Morgan's natal pod has not been identified. Her specific vocal repertoire has no match in historic records. Identification is only possible by finding the pod that has the exact same vocal repertoire as Morgan and identifying this pod visually. Only in winter does this population of killer whales gather in still a fairly large and poor defined area offshore. However in winter it is, due to poor light conditions and rough weather, extremely difficult to impossible to visually identify animals that have been recorded by hydrophone. An added difficulty is multiple groups may be recorded together making even more difficult to match a recorded vocal repertoire to a specific pod (Patrick Miller personal communication).

Second the location of release would most probably then have to be offshore as this is where most of the pods spend most of their time. Transporting and releasing her to

a once found and followed pod would be hazardous to impossible (especially in rough winter weather conditions) and a contingency plan to help her if she is not accepted by the selected pod is hard to imagine, unless she was trained to follow boats which would make the risk of her interfering with other boats and humans after an attempted release very high and could lead to unacceptable and dangerous situations.

Morgan therefore can not be released and a proper location and setting for keeping her under human care has to be arranged.

Appendix 1 Information on experts and author (including selected publications)

C.J. Camphuysen

NIOZ Royal Netherlands Institute for Sea Research
Landsdiep 4
1797 SZ 't Horntje (Texel)
The Netherlands

Personal	
Family name	Camphuysen
First name(s)	Cornelis Jan (Kees)
Date of birth	25 May 1959
Place of birth	Amsterdam, The Netherlands
Education	
	Autodidact
1978	Athenaeum B, Scholengemeenschap Buitenveldert, Amsterdam
Prizes & Grants	
1993	Received Herman Klomp award in 1993, for 150 publications written as an amateur to that date, but particularly for two papers on seabirds and fisheries interactions[3, 17], from NOU, SOVON and Vogelbescherming Nederland.

Mr Camphuysen is associated with the Royal Netherlands Institute for Sea Research (Royal NIOZ) since 1992, first to assess the effects of fisheries on seabirds. Later work has focussed mainly on natural aspects underlying the distribution of seabirds at sea, which has culminated in EC funded projects in which complicated models of foraging decisions of seabirds were parameterised and tested (see below for further details)

Formed his consultancy in 1995 (CSR Consultancy), closely associated with Royal NIOZ and IBN-DLO/Alterra (currently Wageningen IMARES) in which applied scientific questions are addressed, such as environmental impact assessments in the North Sea and Wadden Sea for governmental bodies, NGOs and oil companies. Consultancy was discontinued in 2006 because of a permanent research position at Royal NIOZ.

Apart from a general interest in seabirds and marine mammals (and also in the further trophic levels of the marine food web), his research has mostly had an emphasis on the foraging ecology of marine top-predators and of the interactions between species while at sea. Extensive boat surveys, following standard protocols, in most parts of the North and South Atlantic, including the North Sea, formed the basis of this interest and this has culminated into more detailed studies of the foraging behavior and foraging whereabouts of seabirds and cetaceans at sea. In more recent projects, it is his aim to link reproductive and demographic parameters of breeding seabirds with food availability, prey selection and energetic constraints (foraging range, profitability of feeding, energetic demands of parents and offspring). In these projects, emphasis is on two species of gulls: *Larus fuscus* and *Larus argentatus*.

Since 1977, the effects of oil pollution on seabirds has been an important topic of study, including impact assessments of major spills, a monitoring programme of oiled beached seabirds in

The Netherlands, and necropsies of beached seabirds to evaluate the effects of pollution, but also to study moult, growth, condition, and diet of seabirds at sea

Studies on cetaceans commenced in 1982 and have culminated into several publications on the identification and distribution of marine mammals. Recent work is mainly aiming at the integration of studies of important top-predators in marine ecosystems, mainly seabirds and cetaceans. A Marine mammal database was established in 1987 and has been maintained as a database manager for the Dutch Seabird group and this database is now the primary and most accessible source of information for the occurrence and relative abundance of cetaceans in the southern North Sea. Personal experience with 42 taxa of cetaceans; personal records: 19,889 individual whales and dolphins (as at March 2007). Author of two field guides, one published in Norwegian, one in Dutch, and several papers on the identification of whales and dolphins. Author of a book on whales and dolphins in the North Sea (2006). Conducted mass autopsies of Harbour Porpoises stranded in The Netherlands in 2006 and 2007 and published the results as a report (NIOZ/IMARES project).

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Barrett R.T., C.J. **Camphuysen**, T. Anker-Nilssen, J.W. Chardine, R.W. Furness, S. Garthe, O. Hüppop, M.F. Leopold, W.A. Montevecchi, R.R. Veit 2007. Diet studies of seabirds: a review and recommendations. ICES J. Mar. Sc. 64: 1675-1691.
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Camphuysen C.J. 2000. Mass mortality of Common Eiders *Somateria mollissima* in the Wadden Sea, winter 1999/2000: food related parasite outbreak? Atlantic Seabirds 2(1): 47-48.
Camphuysen C.J. 2000. Seabirds drowned in fishing nets off Jan Mayen (Greenland Sea). Atlantic Seabirds 2(2): 87-91.
Camphuysen C.J. 2000. Zomerwaarnemingen van Noordse Pijlstormvogels *Puffinus puffinus* in Nederland. Limosa 73: 7-16.
Camphuysen C.J. & J. van der Meer 2000. Notes on the distribution of the Spectacled Petrel *Procellaria conspicillata* in the South Atlantic. Atlantic Seabirds 2(1): 13-18.
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Camphuysen C.J. & A. Webb 1999. Multi-species feeding associations in North Sea seabirds: jointly exploiting a patchy environment. Ardea 87(2): 177-198.
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Camphuysen C.J. & Reid J.B. 1999. Trends in seabird systematics: recent sometimes conflicting decisions of BOURC and CSNA. Atlantic Seabirds 1(2): 92-94.
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Camphuysen C.J. 1998. Beached bird surveys indicate decline in chronic oil pollution in the North Sea. Mar. Poll. Bull. 36(7): 519-526.
Camphuysen C.J. 1998. Het voorkomen van de Alk *Alca torda* in Nederlandse wateren. Limosa 71: 69-77.
Franeker J.A. van, **Camphuysen** C.J. & Mehlum F. 1998. The birds of Jan Mayen. Circumpolar Journal 13(2): 28-43.
Camphuysen C.J. & Garthe S. 1997. An evaluation of the distribution and scavenging habits of Northern Fulmars (*Fulmarus glacialis*) in the North Sea. ICES J. Mar. Sc. 54: 654-683.
Furness R.W. & **Camphuysen** C.J. 1997. Seabirds as monitors of the marine environment. ICES J. Mar. Sc. 54: 726-737.
Northridge S., Tasker M.L., Webb A., **Camphuysen** C.J. & Leopold M.F. 1997. White-beaked *Lagenorhynchus albirostris* and Atlantic white-sided *L. acutus* distributions in north-west European and U.S. North Atlantic waters. SC/48/SM44, Rep. Int. whal. Commn. 47: 797-805.
Camphuysen C.J., Ens B.J., Heg D., Hulscher J., Meer J. van der & Smit C.J. 1996. Oystercatcher winter mortality in The Netherlands: the effect of severe weather and food supply. Ardea 84a: 469-492.
Camphuysen C.J. & Winter C.J.N. 1996. Arctic Terns *Sterna paradisaea* in the central northern North Sea in July: offshore staging area for failed breeders? Seabird 18: 20-25.
Garthe S., **Camphuysen** C.J. & Furness R.W. 1996. Amounts of discards in commercial fisheries and their significance as food for seabirds in the North Sea. Mar. Ecol Progr. Ser. 136: 1-11.
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Reijnders P.J.H., Leopold M.F., **Camphuysen** C.J., Heessen H.J.L. & Kastelein R.A. 1996. The status of harbour porpoises in Dutch waters and state of related research in The Netherlands: an overview. SC/47/SM41, Rep. Int. Whal. Commn. 46: 607-611.
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Camphuysen C.J., Heessen H.J.L. & Winter C.J.N. 1995. Distant feeding and associations with cetaceans of Gannets *Morus bassanus* from Bass Rock, May 1994. Seabird 17: 36-43.
Camphuysen C.J. & Winter C.J.N. 1995. Feeding Fin Whales *Balaenoptera physalus* in the North Sea. Lutra 38: 81-84.
Camphuysen C.J. 1994. Flatfish selection by Herring Gulls *Larus argentatus* and Lesser Black-backed Gulls *Larus fuscus* scavenging at commercial beamtrawlers in the southern North Sea. Neth. J. Sea Res. 32(1): 91-98.
Camphuysen C.J. 1994. The Harbour Porpoise *Phocoena phocoena* in the southern North Sea, II: a come-back in Dutch coastal waters? Lutra 37(1): 54-61.
Dahlmann G., Timm D., Averbeck C., **Camphuysen** C.J. & Skov H. 1994. Oiled seabirds - Comparative investigations on oiled seabirds and oiled beaches in the Netherlands, Denmark and Germany (1990-1993). Mar. Poll. Bull. 28: 305-310.
Camphuysen C.J. & Leopold M.F. 1993. The Harbour Porpoise *Phocoena phocoena* in the southern North Sea, particularly the Dutch sector. Lutra 36(1): 1-24.
Camphuysen C.J. 1992. Zeevogelstrandingen op de Nederlandse kust: 26 jaar een vinger aan de pols (1965-1991). Limosa 66(1): 1-16.
Camphuysen C.J. 1990. Biometrics of auks at Jan Mayen. Seabird 12: 7-10.

Camphuysen C.J. 1989. Diurnal rhythm of the Fulmar *Fulmarus glacialis* in the arctic summer. Dansk Orn. Foren. Tidsskr. 83: 85-86.
Camphuysen C.J. 1989. Vondst van een noordelijke Zeekoet *Uria aalge hyperborea* in Nederland. Limosa 62(1): 47-48.
Camphuysen C.J. & Derks P.J.T. 1989. Voorkomen en sterfte van de Fuut *Podiceps cristatus* voor de Nederlandse kust, 1974-86. Limosa 62: 57-62.
Camphuysen C.J. & IJzendoorn E.J. van 1988. Influx of Pomarine Skua in northwestern Europe in autumn 1985. Dutch Birding 10(2): 66-70.
Camphuysen C.J. & IJzendoorn E.J. van 1988. Invasie van Middelste Jagers in Nederland in november 1985. Dutch Birding 10(2): 54-65.
Camphuysen C.J. 1986. Vondsten van Kleine Alken *Alle alle* en Papegaaiduikers *Fratercula arctica* langs de Nederlandse kust. Limosa 59(3): 138-141.
Franeker J.A. van, **Camphuysen** C.J. & Mehlum F. 1986. Status over Jan Mayens fugler. Vår Fuglefauna 9(3): 145-158.
Camphuysen C.J. 1982. Vondst van een Kuhls Pijlstormvogel *Calonectris diomedea*. Limosa 55(3): 99-100.
Camphuysen C.J. & Maas F.J. 1982. Zeevogels in Nederland in 1978. Limosa 55: 17-22.

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B.Sc. Hons., Ph.D. (UBC)

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PERSONAL DATA
Date and Place of Birth: 28 January 1955 Victoria, B.C., Canada
Citizenship Canadian
Education B.Sc. (Honours) Zoology (1972-76), University of British Columbia
Ph.D. Zoology (1977-85), University of British Columbia

EMPLOYMENT HISTORY
1973-76 Marine Mammal Husbandry and Training, Vancouver Aquarium
1985-86 NSERC Postdoctoral Fellow, Pacific Biological Station, Fisheries & Oceans Canada, Nanaimo, BC
1987-88 NSERC Postdoctoral Fellow, ESL Environmental Sciences Ltd.,Vancouver BC
1988-2001 Vancouver Aquarium Marine Science Centre:
1988-92 Curator of Marine Mammals
1992-96 Marine Mammal Scientist
1996-98 Director of Conservation and Research
1999-2001 Senior Marine Mammal Scientist
2001-present Research Scientist and Head, Cetacean Research Program, Pacific Biological Station, Fisheries & Oceans Canada, Nanaimo, B.C.

RESEARCH AND CONSERVATION ACTIVITIES
• Life history, social ecology, and acoustic behaviour of killer whales in British Columbia
- Field studies on foraging ecology of killer whale ecotypes in British Columbia, including potential prey limitation of the salmon-feeding resident population (1990-present).
- Annual field census using individual photo-identification of whales in coastal BC and adjacent waters, in collaboration with G. Ellis (DFO), and K. Balcomb (Center for Whale Research). 1977-present

- Ongoing acoustical monitoring of killer whale populations in the Northeast Pacific Ocean by means of analysis and interpretation of group-specific vocal dialects. 1977-present
J.K.B. Ford – March 2010 Page 2 of 17 - Population genetic studies of killer whales in collaboration with G. Ellis and L. Barrett-Lennard (University of British Columbia). 1994-2001

• Population status, ecology, and behaviour of humpback whales: British Columbia, Hawaii, and Japan
- Lead for Canada, multi-national SPLASH project (Structure of Populations, Levels of Abundance and Status of Humpbacks), a North Pacific-wide project to determine abundance and population structure of humpback whales. 2004-2007.
- Studies on population abundance and identity, site fidelity, and feeding habits of humpback whales in the Queen Charlotte Islands and north BC mainland coast. 1991-present
- Co-principal investigator in a study of the population status of humpback whales in the Bonin Islands, Japan, and its relationship to other North Pacific populations for World Wildlife Fund Canada and Japan. 1988
- Field assistant in study of population dynamics of humpback whales in Hawaii. Responsible for collecting identification photographs of individual whales, making acoustic recordings,and monitoring behavioural activities. New York Zoological Society. 1980-81

• Status, distribution and abundance of cetaceans in British Columbia
- Chief scientist on annual DFO ship surveys for cetaceans in British Columbia waters, 2002-2009
- Three-year field census program undertaken for Gwaii Haanas/South Moresby National Marine Park Reserve, Parks Canada; first such study in area. 1991-93; follow-up survey,
2004-2006.

• Management of human impacts on cetaceans
- Member, and Chair of Scientific Subcommittee, of the joint federal/provincial Johnstone Strait Killer Whale Committee, tasked with developing recommendations to government regarding disturbance effects of whale watching, logging, and fishing on killer whales off northern Vancouver Island. 1990-97
- Member, Board of Directors, Johnstone Strait Killer Whale Interpretive Centre Society. 1994-present
- Invited participant, First International Workshop on the Scientific Aspects of Whale Watching Management, Montecastello di Vibio, Italy. Apr 1995
- Invited Expert, Workshop on the Identity, Structure, and Vital Rates of Killer Whales Populations, International Whaling Commission Scientific Committee, Cambridge, England Jun 1981.

• Impacts of underwater noise on marine mammals
- Technical Specialist on impacts on marine mammals from acoustic deterrent devices, Salmon Aquaculture Review, B.C. Environmental Assessment Office. 1996-97.
- Invited Specialist, Acoustic Deterrents Workshop, U.S. Marine Mammal Commission, Seattle. Mar 1996.
- Co-investigator, effects of acoustic deterrent devices at salmon farms on harbour porpoise. 1994-95.
- Technical Assistant, Beaufort Sea Environmental Impact Statement, regarding biological effects and potential impacts of underwater noise on marine mammals. ESL Environmental Sciences Ltd. 1981-84
- Invited participant in 'The Question of Sound from Icebreaker Operations', a workshop on the effects of proposed Arctic LNG carriers on marine mammals. Petro Canada, Toronto. Feb 1981
- Designed and conducted field study of the potential effects of underwater industrial noise on J.K.B. Ford – March 2010 Page 3 of 17 belugas in the Beaufort Sea. F.F. Slaney & Co., environmental consultants. 1976-77.

• Oil spill preparedness, response and recovery: marine mammals
- Member, Advisory Committee, Robson Bight Salvage Recovery Team, 2008
- Technical Advisor, Queen of the North Sinking Response Team, 2006
- Technical reviewer and advisor for research and recovery programs involving killer whales and humpback whales in aftermath of *Exxon Valdez* oil spill, Alaska. U.S. Dept. of Justice, 1989-92; Exxon Valdez Oil Spill Trustee Council, 1993-2001
- Assisted in rescue and rehabilitation of sea otters during *Exxon Valdez* oil spill. Apr-May 1989
- Assisted in coordination and completion of field surveys to assess impacts of *Nestucca* oil spill on sea otters along west coast of Vancouver Island. Jan-Mar 1989
- Technical Specialist advising on marine mammal issues on the coast of B.C. and potential impacts from renewed hydrocarbon exploration. West Coast Offshore Exploration

Environmental Review Panel. 1984-85

• **Underwater acoustic behaviour and stock identity of narwhals in the Canadian Arctic**
- Field investigation of potential role of underwater vocalization in population studies of narwhals, "Whales Beneath the Ice" program, World Wildlife Fund Canada. 1984-85.
- First comprehensive recording and analysis of vocal signals of narwhals. 1975-76

• **Abundance and distribution of cetaceans in the Canadian Arctic**
- Principal investigator in field study of distribution, abundance and age segregation of bowhead whales and other marine mammals, Beaufort Sea. 1986.
- Co-investigator, aerial surveys of the distribution of white whales as related to physical and chemical oceanographic factors, southern Beaufort Sea. 1977.
- Conducted systematic aerial surveys of marine mammals in Baffin Bay and Davis Strait. Aug-Oct 1976.

ACADEMIC RELATED ACTIVITIES
- Department of Zoology, Faculty of Science, University of B.C.: Research Associate, 1989-92; Adjunct Professor 1993-present
- Marine Mammal Research Unit, Fisheries Centre, Faculty of Graduate Studies, University of B.C.: Adjunct Professor, 1993-present
- Honourary Reader, Department of Zoology, University of St. Andrews, Scotland, 2000-2003
- Guest Investigator, Woods Hole Oceanographic Institution, 1997-99
- Co-instructor, undergraduate level course on biology of marine mammals, Bamfield Marine Station. 1992-2002
- Co-instructor, UBC field course in earth and ocean sciences, Baja California, Jan-Mar 2000
- Supervisor of BSc Honours, MSc and PhD students at the University of B.C., including:
- Barrett-Lennard, L.G. 1992. Echolocation in wild killer whales *(Orcinus orca)*. MSc thesis.
- Deecke, V. 1994. Using an artificial neural network to investigate dialect development in killer whales (*Orcinus orca*). BSc Honours thesis.
- Heise, K. 1996. Life history parameters of the Pacific white-sided dolphins (*Lagenorhynchus obliquidens*) and its diet and occurrence in the coastal waters of British Columbia. MSc thesis.
- Harms, E. 1997. Association patterns and pod cohesion of northern resident killer whales (*Orcinus orca*). MSc thesis.
- O, Miriam. 1998. Investigation of intraspecific scars and nicks within the northern J.K.B. Ford – March 2010 Page 4 of 17 resident killer whale (*Orcinus orca*) population of the northeast Pacific. BSc Honours thesis.
- Barrett-Lennard, L.G. 2000. Population structure and mating patterns of killer whales (*Orcinus orca*) as revealed by DNA analysis. PhD thesis.
- Keple, A. 2002. Seasonal abundance and distribution of marine mammals in the Strait of Georgia, British Columbia. MSc thesis.
- Yurk, H. 2005. Stability of vocal culture in killer whales (Orcinus orca). PhD thesis.
- Dalla Rosa, L. in progress.The relationship between oceanographic parameters and distribution of humpback whales. PhD thesis.
- Rambeau, A. 2008. Determining abundance and stock structure for a widespread migratory animal: the case of humpback whales (Megaptera novaeangliae) in British Columbia, Canada. MSc thesis, University of BC.
- Advisory Committee for the following students:
- Recchia, C.A. 1994. Social behaviour of captive belugas, *Delphinapterus leucas.* Woods Hole Oceanographic Institution, Massachusetts Institute of Technology. PhD thesis.
- Strager, H. 1994. Pod specific call repertoires and compound calls of killer whales, *Orcinus orca* L. 1758, in the waters of northern Norway. MSc thesis, University of Aarhus, Denmark.
- Thomsen, F. 1995. An analysis of whistles and calls from the sound repertoire of killer whales (*Orcinus orca*) off the coast of Vancouver Island, British Columbia, Canada. Diploma thesis, University of Hamburg, Germany (co-supervisor)
- Erbe, C. 1997. The masking of beluga whale (*Delphinapterus leucas*) vocalizations by icebreaker noise. Ph.D. thesis, University of British Columbia. 215 pp.
- Similä, T. 1997. Behavioral ecology of killer whales in northern Norway. PhD thesis, University of Tromsø, Norway.

- Thomsen, F. 1999. An investigation of the acoustic signals of killer whales (*Orcinus orca*) off Vancouver Island, British Columbia. PhD thesis, University of Hamburg, Germany (co-supervisor).
- Williams, R.M. 1999. Behavioural responses of killer whales to whale-watching: opportunistic observations and experimental approaches. MSc thesis, University of British Columbia.
- Hall, A.M. 2004. Seasonal abundance, distribution and prey species of harbour porpoise (*Phocoena phocoena*) in southern Vancouver Island waters. MSc thesis, University of British Columbia.
- McCluskey, S. 2006. Space Use Patterns and Population Trends of Southern Resident Killer Whales (*Orcinus orca*) in Relation to Distribution and Abundance of Pacific Salmon (*Oncorhynchus* spp.) in the Inland Marine Waters of Washington State and British Columbia. MSc thesis, University of Washington.
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AWARDS and FELLOWSHIPS

Dean's Honours List, University of B.C., 1976
Vancouver Natural History Society Award, 1976
Kit Malkin Memorial Scholarship, 1977-80
Maclean Fraser Memorial Scholarship, 1978-82
J.K.B. Ford – March 2010 Page 5 of 17
University of B.C. Graduate Fellowship, 1979-82
Best Student Paper Award, Society for Marine Mammalogy Biennial Conf., Boston, MA, 1983
NSERC Postdoctoral Fellowship in Canadian Government Laboratories, 1985-86
NSERC Industrial Fellowship, 1986-88
Murray A. Newman Award for Significant Achievement in Aquatic Research, Vancouver Aquarium Marine Science Centre, 2009.

COMMITTEE MEMBERSHIPS

- Cetacean Specialist Group, International Union for the Conservation of Nature (IUCN), 2009-present
- Species Specialist Group, Marine Mammals, Committee on the Status of Endangered Wildlife in Canada, 2005-present
- Marine Mammal Subcommittee, Canadian Council on Animal Care, 2003-present
- Killer Whale Recovery Team, 2004-present
- Sea Otter Recovery Team, 2002-present
- Chair, North Pacfic Right Whale Recovery Team, 2002-2005

PUBLIC EDUCATION ACTIVITIES

- Frequent public lectures on whale biology and conservation. Host organizations and facilities include Smithsonian Institution, Washington; Field Museum of Natural History, Chicago; Cleveland Natural History Museum, Ohio; National Aquarium, Baltimore; Columbus Zoo, Ohio; Canadian Geographical Society, Vancouver, Victoria, Nanaimo, Ottawa; Vancouver Island University; Royal British Columbia Museum, Victoria; Alberta Provincial Museum, Edmonton; Vancouver Institute, Vancouver.
- Numerous popular magazine articles, including: National Geographic Magazine, Natural History (New York).
- Contributions to numerous television documentaries, including productions for National Geographic, Discovery Channel (Canada and US), Canadian Broadcasting Corporation, Australian Broadcasting Corporation, British Broadcasting Corporation, NHK Tokyo, TBS Tokyo.
- Co-developed public displays and exhibits on marine mammals, Vancouver Aquarium Marine Science Centre.

REPORTS AND PUBLICATIONS
Scientific Journals:

Ford, J.K.B, G.M. Ellis, P.F. Olesiuk, and K.C. Balcomb. 2010. Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator? Biology Letters, 6:139-142. Published on-line before print September 15, 2009.
Himworth, C.G., M. Haulena, D. M. Lambourn, J.K. Gaydos, J. Huggins, K. Zaremba, J. Calambokidis, J. Ford, P. Ross, and S. Raverty. In press. Pathology and epidemiology of phocid herpesvirus-1

infections in wild and rehabilitating harbor seals (*Phoca vitulina*) in the Northeastern Pacific. J. Wildlife Diseases
Calambokidis, J., Barlow, J., Ford, J.K.B., Chandler, T.E., and Douglas, A.B. 2009. Insights into the population structure of blue whales in the eastern North Pacific from recent sightings and photographic identification. Marine Mammal Science 25:816-832.
Parsons, K.M., Balcomb, K.C. III, Ford, JK.B., and Durban, J.W. 2009. The social dynamics of southern resident killer whales and conservation implications for this endangered population. Animal Behaviour 77:963-971
Ward, E.J., Parsons, K., Holmes, E.E., Balcomb, K.C. III, and Ford, J.K.B. 2009. The role of menopause and reproductive senescence in a long-lived social mammal. Frontiers in Zoology,6:4.
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Christophe Guinet

Researcher of de CNRS (Centre National de Recherche Scientifique)

Research topics : Effects of the variability of the oceanographic and climatic conditions on the acquisition and allocation strategy of resources of the superior marine predators.

Marine resources are distributed in space in relation to oceanographic conditions (fronts, upwellings, oceanic ice edges, river run offs) and their dynamics in time and space. The major challenge for marine predators is to obtain in an optimal manner food which is unevenly distributed and varies strongly between seasons and between years.
My research program is centred on:

1. Effects of oceanographic conditions observed or simulated on the hunting strategies

2. Effects of allocation of food on reproduction and demographic performance of superior marine predators

3. Gathering of oceanographic data by bioacquisition using marine mammals

Research themes and projects :

Distribution of marine predators in relation to oceanographic parameters : effects of shelves

Ecology, fishing efficacy and maternel investment of subantarctic and Antarctic pinnipeds

Conservation of marine ecosystems, influence of human activities, notably of fisheries, maritime traffic on cetacean populations.

Bioacquisition of temperature and salinity profiles

Christophe Guinet has authored over a hundred peer reviewed publications. Selected publications:

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Expertise: sea birds, ecology, population ecology

Research: The main accent of his research is on distribution and food ecology of sea birds in the coastal area and the North Sea. Besides he participates in surveys of harbour porpoises and dolphins in the North Sea

Publications of drs. MF Leopold

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Christina Lockyer

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The North Atlantic Marine Mammal Commission

General Secretary

Christina Lockyer (née Grzegorzewska), born 10th April 1947, is British, and was educated in England: B.Sc. (Hons), Biology -1968 at the University of East Anglia, M.Phil., Zoology - 1972 at the University of London, and Sc.D., Zoology - 1989 at the University of East Anglia. She stepped into office as General Secretary of NAMMCO on 1st March 2005. Formerly she has been employed as a principal scientist by the Natural Environment Research Council in the United Kingdom between 1968 and 1996, and since 1977 at their Sea Mammal Research Unit, originally based in Cambridge, England. From April 1996 until January 2003, she was employed as a senior scientist at the Department of Marine Ecology and Aquaculture at the Danish Institute for Fisheries Research, Charlottenlund in Denmark, after which she launched her own biological consultancy firm Age Dynamics investigating and teaching age determination methods and life history in marine mammals. Her research encompasses population biology, behaviour and ecosystem energetics of large and small whales, and she has an extensive scientific publications record. Her work has included visits to

the Far Seas Fisheries Research Laboratory, Shimizu, Japan for 3 months in 1977, and NOAA Southwest Fisheries Science Center in La Jolla and Sea World Research Institute in San Diego, USA for 3 years between 1988-1990.
She has regularly been involved in advisory committees to the International Whaling Commission (IWC) since the early 1970s, ICES and the Agreement on Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS) of which she was Secretary between 1992 and 1996. Between 1989 and 1991, she was elected President of the worldwide Society for Marine Mammalogy whose membership numbers around 2,000 scientists. She was elected Chairman of the European Cetacean Society with a membership of about 500 scientists, between 1997 and 2003.
She has been involved as international coordinator of the EU-funded EPIC (Project DGXIV 97/0006) and earlier as Danish coordinator in BYCARE (EU FAIR contract CT05-0523), investigating marine mammal - fisheries interactions and by-catch mitigation which subsequently lead to the introduction of acoustic deterrents in Danish North Sea set-net fisheries to prevent harbour porpoise incidental catches.
Currently, in addition to her full-time position as General Secretary of NAMMCO, she continues to run international practical courses on marine mammal biology in universities and research institutions, in conjunction with Age Dynamics, and acts as occasional scientific consultant to the European Commission and various international organisations.

Recent publications:

Rosel, P.E., Frantzis, A., Lockyer,C. and A. Komnenou. 2003. The Source of Aegean Sea Harbour Porpoises. *Marine Ecology Progress Series* 247:257-261.
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James McBain

James McBain, who has more than 42 years of experience in veterinary medicine and 38 years with marine mammals, retired as vice president of corporate veterinary services for Busch Entertainment Corporation in December of 2008. Bush Entertainment Corporation was the parent company for the five SeaWorld and Busch Gardens Parks. Jim started his Busch Entertainment career in September 1987 as a staff veterinarian at SeaWorld San Diego. He is currently retained by SeaWorld Parks and Entertainment Corporation (Same as Busch Entertainment Corporation) as a contract veterinary consultant.

Selected publications:

Sweeney JC, Stone R, Campbell M, McBain J, St Leger J, Xitco M, Jensen E, Ridgway S 2010 Comparative Survivability of Tursiops Neonates from Three U.S. Institutions for the Decades 1990-1999 and 2000-2009 AQUATIC MAMMALS 36(3) pp 248-261

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Reidarson TH, Griner LA, Pappagianis D, McBain J 1998 Coccidioidomycosis in a bottlenose dolphin Journal Of Wildlife Diseases 34(3) pp: 629-631

Fernando Ugarte

***Organization**: Fernando Ugarte*
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Fernando Ugarte is the Head of Department for Mammals and Birds at the Greenland Institute of Natural Resources. He leads a team that gives advice to the government of Greenland for the management of caribou, muskoxen, seabirds and marine mammals, including whales, seals, walrus and polar bear. Fernando is member of the Scientific Committee of NAMMCO (North Atlantic Marine Mammal Commissions) and has been observer at the meetings of the IWC (International Whaling Commission), JCNB (Canada-Greenland Joint Commission for the conservation of Narwhal and Beluga) and the IUCN Polar Bear Specialist Group. Born in Mexico City, Fernando graduated as a biologist at the University of Tromsø in Norway. He worked as a scientist for the Sea Watch Foundation out of the United Kingdom and has traveled the world from Iceland to Antarctica in his research missions. Fernando was responsible for monitoring the killer whale Keiko (featured the movie "Free Willy") during its reintroduction to the ocean in 2002.

Starting out with killer whales (Orcinus orca) Fernando's research has focused on whales and the management of marine mammals from walrus, to seals, polar bears and even porpoise before he came to Greenland. In his work Fernando's is especially interested in survey methods and populations dynamics. He work include collaborating and involving many different parties with interest in the resources of the ocean -- from International organizations, law makers to local hunters in communities throughout the Arctic.

Selected Publications:

Simon, M., Hanson, B., Tougaard, J., Murry, L. and Ugarte, F. 2009. From captivity to the wild and back: an attempt to release Keiko the killer whale. Marine Mammal Science.

Boertman, D., Johansen, K., Rasmussen, L.M., Schiedek, D., Ugarte, F., Mosbech, A., Frederiksen, M. and Bjerrum, M. (draft 2008). Preliminary strategic environmental impact assessment of hydrocarbon activities in the KANUMAS East assesment area. National Environmental Research institute and Greenland Institute of Natural Resources.

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Similä, T. and Ugarte, F.1997. Abundance and social organisation of killer whales in northern Norway. In: T. Similä's PhD thesis. University of Tromsø.

Ugarte, F. 1996. Penguins and marine mammals of the Argentinean Patagonia. Report to Wim De RoutierTravels, Germany

Similä, T. and Ugarte, F. 1993. Surface and underwater observations of cooperatively feeding killer whales in northern Norway. Can. J. Zool. 71(8): 1494-1499

Niels van Elk

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Niels van Elk was educated in Wales B.Sc. (1984) joint honours marine biology and physical oceanography at the University of Bangor. He received his veterinary degree in 1994 at Utrecht University. He is senior veterinarian and supervising marine mammal curator of Compagnie des Alpes who have three marine mammal parks and is the onsite veterinarian of Dolfinarium Harderwijk since 1998. He is a consulting veterinarian at Fjord and Baelt Centre in Denmark, Munster Delphinarium Germany, and Nurnberg Zoo Germany and has consulted multiple times at other dolphin holding facilities in Europe. Besides taking care of the collection of marine mammals at Harderwijk he is also the veterinarian in charge of the rehabilitation centre SOS Dolfijn..
He does part time research at the Erasmus University Medical Centre Rotterdam wildlife research group under supervision of professor Osterhaus and professor Kuiken. He has been a board member of the European Association of Aquatic Mammals from 2004 to 2010. During this time he organised two conferences (Harderwijk 2004 and Oltremare 2005) and co-organised the EAAM workshop on bottlenose reproduction in Paris (Oct 3-5 2005) and organised the EAAM workshop on rehabilitation of cetaceans in Harderwijk (March 21st 2005).

Peer reviewed pubications

van Elk CE, van de Bildt MWG, de Jong AAW, Osterhaus AD, Kuiken T 2009 Genital Herpesvirus In Bottlenose Dolphins (Tursiops Truncatus): Cultivation, Epidemiology, And Associated Pathology . Journal Of Wildlife Diseases 45(4) pp: 895-906

van Elk CE, van Dep Bildt MW, Martina BE, Osterhaus AD, Kuiken T. 2007 Escherichia coli septicemia associated with lack of maternally acquired immunity in a bottlenose dolphin calf. Veterinary Pathology 44(1) pp 88-92

Van Elk CE, Epping N, Gans SJ 2001 Pulmonary function measurements in dolphins using capnography. Veterinary Record 149(10) pp:308-309

Liesbeth Weijs, Cornelis van Elk , Krishna Das , Ronny Blust , Adrian Covaci 2010 Persistent organic pollutants and methoxylated PBD Es in harbour porpoises from the North Sea from 1990 until 2008: Young wildlife at risk? Science of the Total Environment 409 228–237

Weijs L, Das K, Siebert U, van Elk N, Jauniaux T, Neels H, Blust R, Covaci A. 2009 Concentrations of chlorinated and brominated contaminants and their metabolites in serum of harbour seals and harbour porpoises. Environment International 35 (6) pp: 842-850

Thomsen F, van Elk N, Brock V, Piper W. 2005 On the performance of automated porpoise-click-detectors in experiments with captive harbor porpoises (Phocoena phocoena). J Acoust Soc Am. 2005 Jul;118(1):37-40

Beineke A, Siebert U, van Elk N, Baumgärtner W 2004Development of a lymphocyte-transformation-assay for peripheral blood lymphocytes of the harbor porpoise and detection of cytokines using the reverse-transcription polymerase chain reaction Vet Immunol Immunopathol.9 8(1-2) pp:59-68

Conference proceedings and presentations

Surgical intervention in a bottlenose dolphin with chronic arthritis of the right shoulder joint
CE van Elk et al
IAAAM 41st Annual conference proceedings, May 2010, Vancouver Canada.

A *candida glabrata* bronchopneumonia treated with voriconazole in a *tursiops truncatus*
Niels van elk et al
IAAAM 37th Annual Conference Proceedings, May 2006, Nassau, Bahamas

Lung function measurements in dolphins; a preliminary report.
S.J.M.Gans*, , C.E.van Elk, N.Epping, F.H.C.de Jongh, H.C.Hoogsteden.
IAAAM 37th Annual Conference Proceedings, May 2006, Nassau, Bahamas

The use of spiral ct-scan in respiratory tract infections in small cetaceans
S. J. M. Gans, C. E. van Elk, N. Epping, H. J. Ph.Vogel, and H. C. Hoogsteden
IAAAM 37th Annual Conference Proceedings, May 2006, Nassau, Bahamas

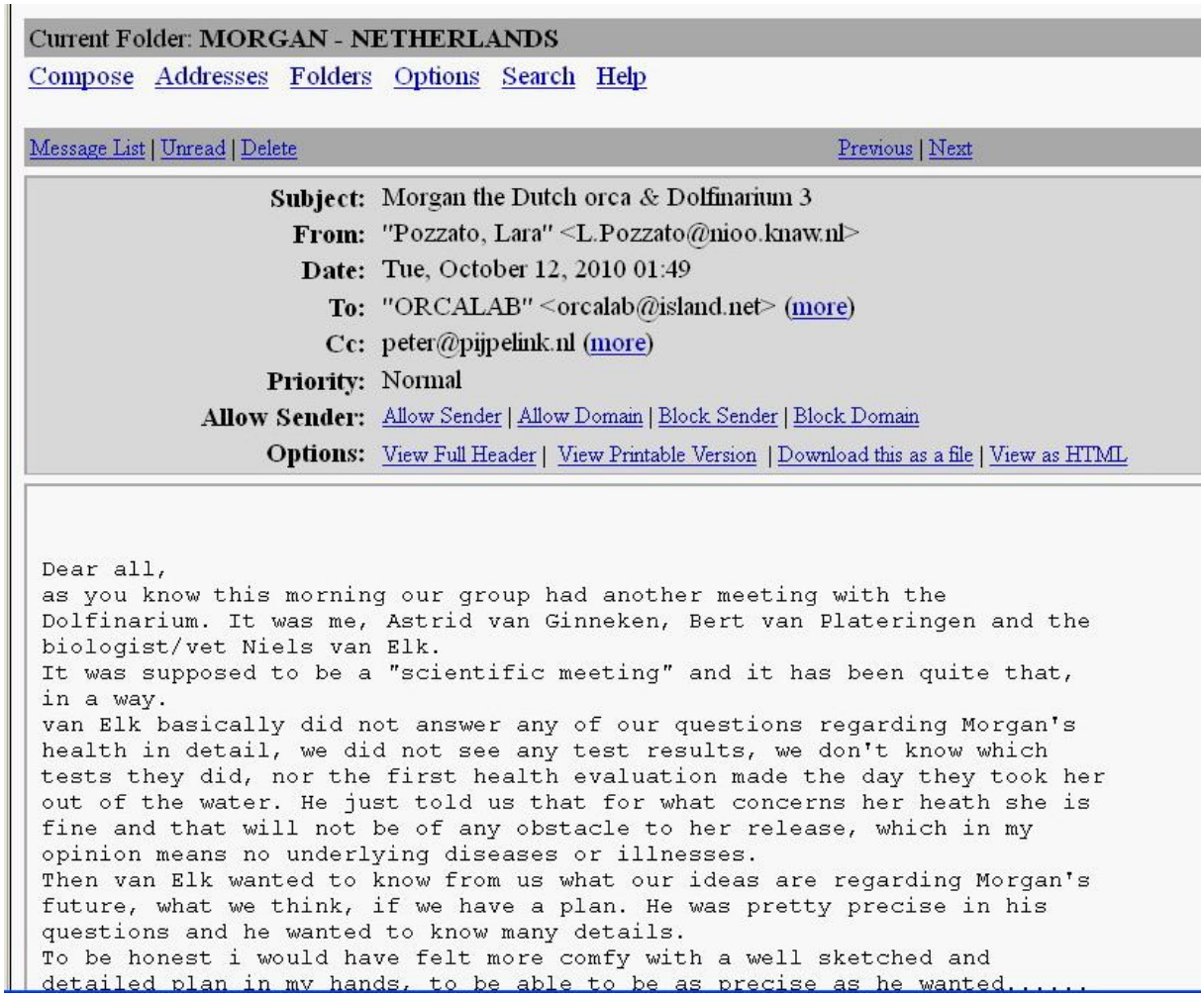
Luteinizing hormone urine concentration monitoring and ultrasonography of ovaries compared as techniques to predict ovulations in *Tursiops truncatus*
Niels van elk et al
2005 Seward Alaska 36th IAAAM Annual Conference Proceedings

Capnography in bottlenose dolphins (*Tursiops truncatus*)
C.E. van Elk* N. Epping, S.J.M. Gans
2002 Algarve Portugal 33rd IAAAM Annual Conference Proceedings

Skin pathology, possibly caused by pox virus, leading to severe healthproblems in harbor porpoises from european waters
Niels van Elk, Ursula Siebert, Genèvieve Desportes, and Kirsten Anderson
IAAAM 29th Annual Conference Proceedings October 2000 New Orleans Louisiana USA

Invited presentations:

On the rehabilitation of cetaceans. CE van Elk 2007 Italian National Conference On Cetaceans And Sea Turtles Rome 5-6 December 2007



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Subject: Morgan the Dutch orca & Dolfinarium 3
From: "Pozzato, Lara" <L.Pozzato@nioo.knaw.nl>
Date: Tue, October 12, 2010 01:49
To: "ORCALAB" <orcalab@island.net> (more)
Cc: peter@pijpelink.nl (more)
Priority: Normal
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Dear all,
as you know this morning our group had another meeting with the
Dolfinarium. It was me, Astrid van Ginneken, Bert van Plateringen and the
biologist/vet Niels van Elk.
It was supposed to be a "scientific meeting" and it has been quite that,
in a way.
van Elk basically did not answer any of our questions regarding Morgan's
health in detail, we did not see any test results, we don't know which
tests they did, nor the first health evaluation made the day they took her
out of the water. He just told us that for what concerns her heath she is
fine and that will not be of any obstacle to her release, which in my
opinion means no underlying diseases or illnesses.
Then van Elk wanted to know from us what our ideas are regarding Morgan's
future, what we think, if we have a plan. He was pretty precise in his
questions and he wanted to know many details.
To be honest i would have felt more comfy with a well sketched and
detailed plan in my hands, to be able to be as precise as he wanted.....

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To be honest i would have felt more comfy with a well sketched and
detailed plan in my hands, to be able to be as precise as he wanted.....
I reported the 2 options that i received from all of you guys:
1. free her right away, with as less handling as possible and less
interference as possible, keeping in mind she is wild and she has not been
captive for long so her instincts should help her
2. release with a well constructed plan that involves various steps,

including a first move to a sea-pen in the Oosterschelde where she can finish her nursing period and be gradually re-acclimatized to hunting/swimming, can get more stimulus from the environment, gain more fitness and where she can learn to follow her "rescue boat" so that she can be taken out for long "walcs". After this, move her to her "home territory" in another sea-pen and make her interact with other orcas to try the reintroduction.
And here is where all the questions came:
a) how long should the first pen period be in the NL, how long do we want to try the reintroduction in her habitat for (meaning: how many seasons of interaction would you try before calling it a day and say she can not make it, in case the first attempts are not successful),
B) what kind of living food do you feed her (giving we don't know if she is a mammal or fish eating orca and giving the fact that apparently it's very difficult to get mackerel and herrings live in such big quantity as we would need),
C) which area would you choose for the release (giving we still don't know which population she belongs to and unfortunately the NE-Atlantic is not as friendly as BC or Washington State and there are very few spots where to have a near shore pen which can be close enough to the passing pods to permit the interaction),
D) giving that normally they hunt in groups how can you estimate if she can feed herself even if you present her live fish, and how can she make it
E) what about the interactions with the boat, what if then she goes after all boats and she get injured (see Luna)
F) what about the strong bond with humans and the fact that for such a plan you'd need to train her somehow to be recalled if the conditions are bad or at night or if the other orcas don't want her and if she stays too long dependent on men then she will get imprinted

As i said, i'd have needed a more precise plan but i tried my best to answer these questions using all the info i got from all of you and the knowledge i have. Luckily Astrid was there with me.
But i made well clear that even if we know the release would not be a walk in the park and even if we are not sure it will be a great success, we still need to try and all these problems and difficulties should not be an obstacle to her release, there is no shortcut possible, to should not happen that just because of this the attempt is discarded.
van Elk agreed on this and said that the only criteria that will be followed to decide will be her well being, the survival chance and the life quality she can get.
Unfortunately this decision will be made only by the 7 experts they contacted, the Dolfinarium and the Ministry.
I got few more hints on these experts, no direct info and no names but now it's very clear they are not aquarium persons and they mostly come from Northern Europe. He said they first contacted a Danish researcher that gave them the other names. I have my "list of possible suspects" but without confirmation.....
The reports of these experts will be ready by mid-November and made public and we'll be able to comment on them and to give our opinion on the decision but no further involvement will be allowed to our group before that moment. Then, if the decision is "yes we release", we'll be called in to work with them and to make the big plan necessary.
To be noted that they follow their own standards for the release, that they made according to the U.S. guidelines for stranded marine mammals and in their policy the cetaceans can be released only if they had a max of 1 year of human dependent care....longer time would be too much to guarantee a successful release, according to their protocol for porpoises.
So then he asked what we would suggest if she can't be released and here Astrid gave the "permanent sea pen option".
Unfortunately i did not have the very useful suggestion that Suzanne made last night to Astrid so i could not report on that.

van Elk seemed very professional and very open, even if i sensed a bit of distance and coldness. As i said, he was very precise and inquisitive. He took notes, appreciated the fact that indeed we had a plan, the fact that i provided also a suitable place for the Dutch sea pen and that fact that we see the difficulties and challenges of the whole process and share the same concerns he has. He also was positively impressed by all your names guys and he agreed that we have a great expert board.
There was an awkward moment when we disagree on the age estimate....they insist she should be between 18 and 24 months old, we believe she should be between 3.3 and more than 4 years.....their estimate comes fro their experts, the whaling data form Norway and the captive growth rates.... our comes form Astrid's analysis of some literature data and the Rit Fiskideildar graph.....

All in all it was not that bad but we did not come out with most of the answers we wanted and we are not allowed to be part of the decision making process. We can join in only afterwards to report our comments and to help out if case they release her. We'll have another meeting once the reports are ready.

I am thinking to put down a detailed plan, on paper, to send them so that they have a proper dossier....could you help me on that?
Again many thanks to Astrid for being there, backing me up, supporting and fill in the gaps in my preparation....really very appreciated.

For the ones of you that wanted to know: tank water temp 16 degrees celsius, artificial sea water. She seems to love herrings more than anything else.

I hope my update is detailed enough..... and i hope to get your feedbacks very soon.
Thanks to all for helping us and Morgan.
Regards
Lara

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