Orca Incident Plimmerton, July 2021: technical notes & directory

[redacted]

Created by [redacted], 15/7/2021

CONTENTS

Documents:

CIMS structure and comms [redacted]

Draft Orca Incident TAG TOR [redacted]
(Technical Advisory Group, Terms of Reference) drafted [redacted] 15/7/21

Technical advice from our team: 13/7/2021
[redacted]
Summary: Our summary advice is to:

1. *Continue efforts to find an orca pod with which to reunite the calf, including providing liquid nutrition as appropriate and undertaking regular health assessments to an agreed standard;*
2. *Reduce and minimise the number of human interactions with the calf, focused on only those interactions which are medically necessary or directly prevent further harm;*
3. *Develop health indicators which are appropriate to assess how well the calf is doing and whether welfare concerns require a change in course;*
4. *Arrange secondary plans, including iwi approvals, to undertake ballistic euthanasia should the calf fail a health assessment; and*
5. *Make arrangements, including iwi approvals, for a necropsy should the calf die.*

…draft advice related to the 2016 Tauranga orca calf incident which may be relevant ([redacted]).

NOAA reports *from 2016 [via [redacted]]*
Just following up from our conversation this afternoon, below is an email from NOAA colleagues back in 2016. I assume some of them may still be in relevant positions and able to assist if advice is needed. The links in the original email no longer work, but here the relevant documents are attached, with links below.
Standards for release: Final polices and best practices : marine mammal stranding response, rehabilitation, and release : standards for release (noaa.gov)
Standards for rehab facilities: Final polices and best practices : marine mammal stranding response, rehabilitation, and release : standards for rehabilitation facilities (noaa.gov)
Glossary for response, rehabilitation, and release: Glossary for Best Practices for Marine Mammal Response, Rehabilitation, and Release (noaa.gov)

Additional notes from [redacted]:
The medical assessment discussion begins on page 36 of the standards for release linked below. It looks light on specifics, so it would be appreciated if you could read this and coordinate with overseas folks to flesh out any detail required beyond what you're already doing. It is also worth noting that this calf would be deemed "Non-releasable" under US standards due to its young age. According to their documents, orca are not fully weaned until 2-3 years and 4 m in length, which is a long way away for this animal. Whale Rescue has mentioned weaning as early as 9 months, which might be plausible under some circumstances (i.e. an animal in a facility) but seems optimistic in this case. Any discussion of plans to hold the calf until it's weaned need to be grounded in the reality of how long this would take, in addition to all of the other caveats around behavioural conditioning, costs, etc.

Discussion of age/length of calf
HUHA vets measured animal at 212 cm on 16/7/2021. Below is information provided by Ingrid in 2016, which shows that this is (at the least) a very small animal, likely quite young:

LOCATION	SEX	AGE YEARS	LENGTH + (other details)	SOURCE
ICELAND		*Stillborn* (16 months)	225	(Katsumata et al., 2006)
CAPTIVITY		At birth	231	(Duffield and Miller, 1988)
Various		At birth	232	(Clark et al., 2000)
CAPTIVITY		At birth	236	(Duffield and Miller, 1988)
CAPTIVITY	F	At birth	240	www.orcapod.wikia.com/wiki/Category:Vicky
NORWAY		At birth	240	(Christensen, 1984)
Worldwide		At birth	250	(Ford, 2008)
JAPAN		2 months	270	(Amano et al., 2011)
JAPAN		Neonate	274	(Nishiwaki and Handa, 1958)
NORTH ATLANTIC	F	2 (estimated)	274	(Katsumata et al., 2006)
PACIFIC	M	1	277	(Myrick et al., 1988)
NORTH ATLANTIC	F	+ 1	287	(Myrick et al., 1988)
ICELAND	F	2	290	(Duffield et al., 1995)
PACIFIC	F	3	290	(Myrick et al., 1988)
ICELAND	F	2	312	(Duffield et al., 1995)
ICELAND	F	2	295	(Duffield et al., 1995)
ICELAND	F	2	300	(Duffield et al., 1995)
PACIFIC	F	2	312	(Duffield et al., 1995)
PACIFIC	F	2	323	(Duffield et al., 1995)
PACIFIC	F	3	335	(Myrick et al., 1988)
NORTH ATLANTIC	F	??	**343** (MORGAN capture 23 June 2010)	Niels van Elk (2010) Dolfinarium Harderwijk
ICELAND	F	4	350	(Duffield et al., 1995)
NORTH ATLANTIC	M	3	350	(Myrick et al., 1988)
ICELAND	F	4	351	(Duffield et al., 1995)
NORTH ATLANTIC		3.3-3.9	350 (calculated from Clark (3.50 - 2.32) / 0.36 = 3.3 years & her maximum age would be (3.50 - 2.32) / 0.30 = 3.9 years	(Clark et al., 2000)
NORTH ATLANTIC	F	5	350	(Duffield and Miller, 1988)
PACIFIC	M	3+	354	(Myrick et al., 1988)
NORTH ATLANTIC	F	?? +1	**365** (growth since June 2010 = 22 cm) **(MORGAN 23 June 2011)**	pers com. Steve Hearn, Dolfinarium Harderwijk
PACIFIC	F	3	**366**	(Duffield et al., 1995)
ICELAND	F	6	**370**	(Duffield et al., 1995)

Comment from [redacted], Sea World vet:

Hi, based on total length from captive animals the predicted ages at lenght are listed as follows:
birth: 232 cm
1 month: 243 cm
2 month: 253 cm
3 month: 262 cm
4 month: 270 cm
5 month: 278 cm
6 month: 286 cm

There is a large predicted error (see attached paper; Clark et al. 2000). However, put the total lenght data, along with the yellow eye patch and fetal folds would all point to a very young animal < 3 months. All information indicates that this animal is non-releasable.

Comment from [redacted] (Loroparque vet):
With a size of 2,15 m - your calf will probably be about 2 to 2,5 months old (the size of our male calf at that age).

Activity log (not necessarily complete)

14/7/21
Handover to from [redacted] to [redacted] remaining as vet advice.
MS Teams meetings with:

- [redacted]
- Wgtn Zoo vets

15/7/21
Working on TAG group TOR and formation, making contacts, compiling technical info documents.
MS Teams with [redacted]
Orca placed into pool.

16/7/21
Further work on TAG formation.
Sarah Owen working on medium term planning.
Looking into satellite tag options.
Decision made that no autopsy will be done if orca dies – [redacted] informed.
Tech advisor on site next week? Checking with AB.

19/07/21
TAG formed and first meeting held. [redacted]:
[redacted]
Sub-teams tasked with working on: 1) advice on satellite tagging; 2) advice on euthanasia methods; and 3) assessing likely age of calf.
Further work to be done by TAG to develop a welfare/ethics framework to guide decision-making (outline to be provided by [redacted])

Contacts:

[redacted]
Marine Species Team, Dept of Conservation
DDI: +[redacted]

Dr [redacted]
Veterinary Advisor Kākāpō - *Kaitohutohu Rata Kararahe Kākāpō*
Department of Conservation - *Te Papa Atawhai*
Postal address: Department of Conservation, PO Box 743, Invercargill 9840, New Zealand
Physical address: Department of Conservation, Level 7, 33 Don Street, Invercargill 9480, New Zealand
http://kakaporecovery.org.nz/
[redacted]

[redacted] **BVSc, MVSc (Zoo Animal and Wildlife Health), MANZCVS (Avian Health)**
Senior Veterinarian | Animal Care and Science | Wellington Zoo Trust
200 Daniell Street | Newtown | Wellington 6021
Ph [redacted]
E [redacted]@wellingtonzoo.com | W www.wellingtonzoo.com |
Also [redacted]@wellingtonzoo.com>

NOAA: – were involved with 'Springer', an orca juvenile that was managed in captivity.

- [redacted] - NOAA Federal [redacted]@noaa.gov>, (Eastern US)
- [redacted] - NOAA Federa [redacted]@noaa.gov>; (Eastern US)
- [redacted] - NOAA Federal [redacted]@noaa.gov> [redacted] (Seattle)
- [redacted] – [info from [redacted] Northwest Fisheries Science Center as the lead for our killer whale research team. He is very knowledgeable, was involved with captures for public display in the 1970's, was instrumental in our efforts for A73, and also went to NZ to assist with the last killer whale calf case.]

Names from Ingrid Visser, via Ian Angus:

- [redacted]? An Orlando vet?
- [redacted] (NOAA) – see above
- [redacted] – involved with 'Springer'

[redacted] PhD, Diplomate ACVP, BVSc (Dist), BSc
Professor of Veterinary and Marine Mammal Pathology
Deputy Head of School and Dean of Postgraduate Studies
Tāwharau Ora - School of Veterinary Science
Massey University
Tennent Drive, Palmerston North 4442, New Zealand
Ph [redacted]
[redacted]@massey.ac.nz
[redacted]

[redacted], Massey university, [redacted]
– experience with animal ethics/welfare. Yet to talk with. Contacts passed on by [redacted]

Vets/cetacean people I/we have been in contact with (from [redacted], 15/7/21)

- Dr [redacted] – Animal Rescue Veterinarian (IFAW)
- [redacted] – Director – Marine Mammal Rescue and Research (IFAW)

- Dr [redacted] - Animal Health and Welfare Director (Sea World Abu Dhabi)
- Dr [redacted] – Clinical Associate Professor -Aquatic Animal Health (University of Florida, ex Sea World vet)
- Dr [redacted] – Vice President of Theriogenology (Sea World)
- Dr [redacted] - Head Veterinarian & Director, Animal Health (Vancouver Aquarium)
- Dr [redacted] - Sr. Veterinarian SEA Animal Health and Rescue Hospital (Sea World)
- Dr [redacted] Professor of Veterinary and Marine Mammal Pathology (Massey University)
- There are others who have been contacted but are currently on leave and as such have not had replies – most notable is [redacted] who has been recommend by both Dr [redacted] and [redacted] (NZ based) as an expert in orca behaviour (out of office reply say he is back 19th July)

Others in addition to the above who Wellington Zoo appear to be in contact with:

- [redacted] – Veterinary Resident (Vancouver Aquarium)
- [redacted] – Veterinarian (Sea World, Texas)

I saw on facebook that Loro Parque have also reached out though I am not sure whom to (hasn't come through to me)

[redacted]
Communication Advisor – Hauraki, Waikato, Taranaki
Department of Conservation
Hamilton
[redacted]

DOC

- Meg Rutledge – involvement in animal welfare, but no cetacean experience.
- [redacted] – Chair of DOC Animal Ethics Cttee. Presently on leave
- [redacted] – animal welfare experience

[redacted]

- Massey Univ Cetacean welfare/ethics/biology expert
- Ex chair of animal ethics committee?

[redacted], Auckland University. Experience in cetacean genetics, biology, welfare.

[redacted], Seattle Aquarium. Experience in transporting cetaceans.

Loro Parques, Teneriffe, Spain – have apparently contacted us via social media. Involved in hand rearing of an orca 'Morgan'. [redacted] is chasing up contacts.
https://en.wikipedia.org/wiki/Loro_Parque
https://en.wikipedia.org/wiki/Morgan_(killer_whale)

Roster for DOC tech staff, 11-25 July

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15
	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
Planning/ Intelligence & Spokesperson	Ian A	Ian A	Ian A	Ian A	Ian A	Ian A	Kirstie K	Kirstie K	TBC	TBC	TBC	TBC	TBC	TBC	TBC
Technical Advisory Group (TAG)	[redacted]													TBC	TBC
Acting Manager MST (as needed)	-	-	[redacted]											TBC	TBC
Director	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H	Elizabeth H		

Advice given:

Highlights are inserted by me [redacted]).

[redacted] - NOAA Federal [redacted]@noaa.gov>

Advice given in 2016 re Tauranga:
I want to introduce you to our national response coordinator [redacted] cc'd here. She is another resource contact for you.
Here's the weblink to our release criteria:
http://www.nmfs.noaa.gov/pr/pdfs/health/release_criteria.pdf
Page 41 has the decision tree for cetaceans in text form. The checklist is on page 110.
The Rehabiliation Facilities criteria is here:
http://www.nmfs.noaa.gov/pr/pdfs/health/rehab_standards.pdf
Although we were pretty clear that these are for long term holding facilities and we don't necessarily apply them to temporary situations (pop-up pools). In fact, that's part of the revision of the guidelines we're working on. But there might be something in there that is useful. Cetaceans are Section 1.
We don't have many situations in which rehabilitation occurs in open water pens (net pens) but have had some (A73 is an example). The group in the US that has the most experience with net pens is the National Marine Mammal Foundation. I know that [redacted] has contacted them about veterinary care working with [redacted]. We work very closely with them on veterinary assessments, they have assisted us with live captures, they have assisted us with long transport and release back to the wild. In these types of veterinary consultations it is often critically important to incoming veterinarians to understand their legal status for consulting and connection or request from the national or regional government. It might help things move faster for them if the request for consultation would come from the management team or [redacted] and the Department of Conservation. That ensures there are no legal issues or confusion on expectations for the consulting veterinarians. That may have occurred overnight while we slept on the east coast and clarification may have happened. Again good luck and contact us when you need.

[redacted], NOAA, Seattle 15/7/2021

Thanks for reaching out. [redacted] and I are all still with NOAA. I'm in Seattle and worked on the A73 case and am happy to share any information. We have a timeline and some basic background information on our web page https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/orphan-killer-whale-a73-springer
We also have much more detailed medical and planning information as well if helpful.
Please don't hesitate to reach out with any questions.
Good luck with this challenging situation,

Case study provided on 16/7/2021 for A73/Springer: [redacted]

[redacted] (Auckland Univ) [redacted]@auckland.ac.nz

I am hoping there is a good end for the killer whale calf and because of that, was wondering whether it was possible for someone in the team (a vet) to get a skin sample from the calf? It would only need to be a skin scraping - not a cut - so that we have him in the archive records. If he was to wash ashore at some other time in his life, then we would have this sample for potential comparison.
This is not urgent, just a request from a rare opportunity and no problem if this is not oaky with mana whenua.
Just pop the tissue from Toa into a small vial 2 ml is fine with ethanol.
It gets sent to me
[redacted]
School of Biological Sciences
University of Auckland
Thomas Building
3A Symonds St
Auckland Central 1010
Ph [redacted]
Please tell Ngati Toa that that the sample will be held in the archive but won't be used immediately, it will be valuable later when we have sufficient samples to understand the relatedness of the killer whales of Aotearoa.
Sometimes people think we're going to work on them straight away but that's not usually the case.

[redacted], IFAW, copy of email (and attachments) at [redacted]

Attachments are vet-related pdfs on:

- *IFAW Cetacean health assessment form*
- *In-house dolphin reference ranges*
- *2012 pulmonary ultrasound dolphins.*

From: [redacted] *@ifaw.org>*
Sent: *Tuesday, 13 July 2021 3:49 AM*
To: [redacted] *>*
Cc: [redacted] *@ifaw.org>*
Subject: *RE: Stranded orca calf in New Zealand*

Thanks for the great info, [redacted] What a tough situation.

First things first – vets to contacts for continuing care/feeding for the calf, if it is decided to pursue this:

1) Dr. [redacted] – University of FL – long time (past) SeaWorld vet with tons of experience with orcas: [redacted]@ufl.edu
2) Dr. [redacted] – now with San Diego Zoo Global, but also a long-time SeaWorld vet with tons of orca experience: [redacted]@SDZWA.org
3) Dr. [redacted] – SeaWorld Abu Dhabi (just transferred from SeaWorld San Diego) – time zone might be a little better for you guys and [redacted] is great to work with and he likely has the most up-to date protocols for calf rearing [redacted]@seaworld.com

To be honest, if this stranding occurred here, I would euthanize that animal since the likelihood of success is almost non-existent based on my experience. Pods don't abandon calves without reason, so it is likely that this animal had a pre-existing condition that led to its stranding and abandonment. But I realize that the situation there may be different from a political and cultural standpoint. And, of course that is also easier said than done if IV access is questionable (although I know DOC has significant experience with ballistic euthanasia).

Was the animal listing to the left when put back in the water for holding? In the video it looked like the calf was maintained in left lateral recumbency on the trailer. If that occurred for a long period of time, the left lung likely collapsed under the weight and hopefully can reinflate, but the atelectasis can still last hours. By holding the animal in the water, more natural chest excursion can occur, hopefully allowing the atelectasis to correct itself and also allowing the calf to oxygenate more effectively. While holding in the water, trying to do physical therapy (up and down tail movements to simulate swimming) can help to minimize potential scoliosis that can develop from stranding (muscle contraction on one side, especially when in lateral recumbency). Also do range of motion with the pectoral flippers if possible. These exercises can be done for 10-15 min at a time a few times a day to start, depending on how the animal tolerates it. Based on how that animal was held initially this would be a significant concern of mine, that the animal would develop significant muscle contracture, which is often unresolvable. Muscle relaxants can be used (like methocarbamol), in addition to pain meds and anti-inflammatories (meloxicam) to help prevent/attempt to treat, but its not always successful.

If continued care is elected, a full workup is indicated. I attached our current physical exam form that can help guide the PE. I also attached our reference ranges for both PE and bloodwork. These are largely based on stranded short beaked common dolphins since that is what we see most frequently, but should be reasonably applicable to orcas.

For a calf I would be most interested in hydration status, glucose, liver values and a CBC – but a full CBC/chem panel would be best. I would think this calf is old enough to have stabilized glucose, but that would be high on my list to check, since septicemia is possible and the animal has been fasted. Muscle enzymes (CK, LDH, AST) and lactate should be monitored for trends (may be significantly high after the night in the trailer). Anemia is a consistent negative prognostic indicator for our stranded dolphins, as is marked neutropenia. Of course look for dehydration as well on the bloodwork to guide fluid therapy.

Ultrasound examination of the calf would be useful, especially to look at the lungs for any evidence of pneumonia. Great paper on pulmonary ultrasound in dolphins attached. The calf is small enough that it is a useful tool. Of course a hearing test (AEP or BAER) would be ideal, as deafness can be a reason for calf abandonment. But I don't think anyone in NZ has the equipment to do this. Our team does – so if there is serious interest in this, we could potentially discuss. Alternatively placing hydrophones in the water to see if the calf is vocalizing at all might be another possible tool. Although we haven't used this diagnostically, and it certainly wouldn't be a definitive thing, if the calf is not vocalizing, that would be a poor prognostic indicator in my book.

Any feces or urine production that they could appreciate?

It is important to point out in general, that cetacean rehab is expensive, labor intensive and has a very low success rate historically. I fear that this calf may die within a few weeks if held in care. If it does survive and regains its health, its most likely outcome would be permanent placement in a managed care facility since likelihood of successful reintroduction to a pod would be almost nil. I really hate to be the pessimist here, but I think it is important to be realistic when taking on such an endeavor. If the pod is not relocated in the next day or two, the decision should be made whether permanent placement or euthanasia would be the most humane outcome for this animal. As more time goes on, like you said, likelihood of reintroducing to a pod is getting smaller and smaller. So I would say holding for 3-4 days total with an absolute MAX of one week (obviously would have to tube feed it ASAP) is your window for releasing. And as I mentioned before, the likelihood that the calf was not accidentally abandoned is extremely high.

I cc'd [redacted] as well in case he has anything else to add.

Happy to continue to help as best I can from here. Please keep me posted if you can. Sure wish I could be there to help and so sorry you all are having to endure this really difficult situation!

Best, [redacted]

From: [redacted]
Sent: *Monday, July 12, 2021 6:43 AM*
To: [redacted]
Subject: *Stranded orca calf in New Zealand*

Hi [redacted]

Thank you again so vey much for answering my plea for help last night – so very much appreciated! Managed to get the calf kept in the water overnight which was a great initial step as they had been planning to trailer it again for the night.

A little more history…. Pod was seen Sunday morning free swimming – calf was with adult female. At lunch time the calf was found stranded. An attempt was made to refloat it at the stranding site but wasn't successful. Advice was given to trailer it to a better location and retry a refloat with hopes the pod was still near enough to hear. Unfortunately no joy so the decision was made to keep the calf on mattresses on a trailer overnight.

Calf is estimated to be 2.5-3m long and believed to still be dependant on the mother. Unfortunately despite extensive searching today both aerial and on the water failed to locate the pod. The calf was kept in the water for the day. For videos I have seen it appears to be suffering buoyancy/stability issues and lists heavily to one side. There is a suggestion that this is due to compression of a pectoral fin from its positioning the first night.

A Zoo veterinarian was attending this afternoon to assess the calf and attempt to give it electrolytes via an orogastric tube as we recommended. I have not heard as to what the assessment was or how the procedure went.

We know the chances of a dependant calf being reunited with a pod are slim but have been requested to investigate options for supporting the calf to allow time for an attempt to be made. As such I was wondering if you were willing to provide advice on the follow points (or had any colleagues you could put me in touch with that would be willing to provide advice).

- *Indicators for the health of the calf to assist in our decision-making – clinical exam? Behaviour? Any templates to assist in assessing the health of the animal?*
- *If the decision is to continue with oral fluids by tube is there any advice of how often this should be done?*
- *If the decision was to persist for longer then what are the feeding recommendations for an orca calf (I am assuming SeaWorld and Loro Parque would be the people to contact about this – do you have any direct contacts for them?)*
- *Also interested in what thoughts are around the releasability of an animal like this – presumably the longer it is held the lower the chances of successfully reuniting it with a pod.*

Thank you so very much in advance for any thoughts or advise – It is so very much appreciated by us all.

[redacted]

Vancouver Aquarium & Seaworld vets? (via [redacted] U 15/7/2021)

Summary of advice provided by overseas experts with regards to reintroduction to the wild

- *It would take approximately 30 days for the cow to completely dry up. In addition, many cetacean species (in captive environments) have spontaneously lactated if a calf was introduced. With that being said, the milk is typically, initially (and maybe always) of lower quality and the calf would need to be robust enough to withstand the transition*
- *In our area, the animal would be deemed non-releasable and a suitable long term home would be found. If no home can be found and the animal cannot be reintroduced then your options are quite limited. Folks do release dependent calves on their own but, again, most people think this is a bit cruel most likely. Some animals like that may become nuisance animals but I suspect this calf is too young for that. If that is the choice offered then I would at the very least try to attached a tracking tag so some kind of objective outcome can be determined to help collect evidence for future decision making.*
- *If a suitable long term home is not available in NZ or Australia then you and your Team will need to make a decision on how long to continue the supportive management of the calf … I agree, that with each day the outlook for a successful reintroduction wanes and the overall welfare of the calf will weigh heavy into the decision-making …*
- *This calf appears to have about zero chances of survival in the wild. Finding its pod would be an interesting experiment, but do you really want to put the animal through this experiment knowing that the pod left it once already (I don t know the circumstances behind this stranding so I am making a large assumption) and would probably not welcome the animal back into the group for the same reason it left it the first time. Experience with dependent calves would indicate that it is non-releasable. In my opinion, If you can't care for the calf long term and the government is unwilling to move it to a facility that can, you should humanly euthanize it sooner than later.*

[redacted] – Loroparque vet, has attempted to raise 3 calves, 2 successfully

I have been copied to a few mails exchanges and thought I would just add herewith our most recent formula (with which we raised two killer whale calves - that are still with us) but mainly the timing of administration. The biggest issue we found out (and the reason for failure before) is the high volume administered in a short time.

It will have to be fed 24/24 to start with until it can stabilize.

If you cannot have access to zoologica milk powder (but often to be found in zoological institutions), I have also used human milk powder - without lactose - with success.

With a size of 2,15 m - your calf will probably be about 2 to 2,5 months old (the size of our male calf at that age).

For our calves at that age, we really found out that 9L per day is a great maximum (when going higher they started developing medical problems (delay in digestion and inflammation of the digestive system), and these problems can also only be identified if you can take blood regularly and especially perform ultrasounds of the digestive system (together with being able to recognize and assess their digestive organs). They will NOT show these digestive problems behaviourally until they are pretty far. Problem is to reach the necessary calories, as mum's milk is way more caloric than what we can offer them. And the mistake then is going up with the formula.

We would start around the clock - every 2 hours - with a low volume of intubation/bottle- and then we'd raise the volume slowly up to 1000 - 1300 ml (over weeks) max per intubation/bottle and start having longer times at night without feeding.

Up to an age of 9-10 months, 12 L would be the great maximum - but generally we had to go back down to less because of changes identified in the blood and by ultrasound - all related to food.

The other major issue we have found over time is starting to feed fish too early - which I absolutely not recommend (not before 6 months of age, and still, in small quantities).

These are in the big lines the lessons we learned by raising 3 calves, 2 having been successful, and having learned the mistakes from the other one.

What is also very helpful is to add tensio-actives (simethicone) with every formula administration (certainly if by bottle), because they will swallow large quantities of air. Their abdomen is not "distendable" like in other species, and this high quantity of air in their guts can make them very uncomfortable.

Please let me know if I can help you in any other way.

[redacted] - Draft notes in response to topics noted by Ian Angus, 15/7/2021

Here's some draft notes of things to consider from your list of things to discuss.

welfare protocol over time

- *Monitoring of vitals – respiration, blood, bowels & urine, behaviour, external visual. Baseline data & changes.*
- *Managing health - feeding & fluids, mobility*
- *Bottle feeding vs tube feeding – our recommendation is tubing.*
- *Adjusting management in response to monitoring and new advice*
- *Need measurements to assess age status and also health – length, girth, . Data is not available to DOC TAG at present.*
- *Note that it appears very young? – ie weeks up to 3 months?? Based on lack of teeth.*
- *Other age indicators. Any foetal folds – not prominent? Colour of eyepatch still appears quite yellow > young. Important to know for logistics of long term response.*
- *Recommendation from Seaworld & NOAA is to not release a neonate – only ever into permanent human care (which we do not recommend).*
- *Interactions with people – minimise this is recommended. People in the water and/or interacting with the orca only as needed – specify acceptable reasons (eg see earlier tech advice).*

tagging of calf

- *Sat tags available from* [redacted] *(for pilot whale project).* [redacted] *all trained.*
- *Prefer 2 present onsite when being done*
- *Affix to dorsal fin drilled)*
- *Suction tag a lesser possibility.*
- *Recommend – decide if it's OK. check with* [redacted] *if we can use one (IFAW have given permission).*

Relocation into the natal pod

- *Need to confirm that it is the natal pod – photo id (from Ingrid, preferably with photo evidence), genetics (not fast enough)?*
- *Advice is that mother will continue to lactate for ~30 days, but with reduction in volume and prob quality of milk produced.*
- *No guarantee that the pod will take it back.*

relocation into a pod with lactating female

- *International advice (Seaworld, Vancouver Aqu vets via* [redacted] *is that this is highly unlikely to succeed*
- *Alloparenting has been seen in some species, but not a recommended option.*

Relocation into a pod with no indication of a lactating female.

- *Less reliable outcome.*
- *Some indication (from captive animals?) that females might start to lactate when a calf is introduced?*

translocation into a sea pen

- *Creates a safer environment for management*
- *Costly & logistically might be difficult?*
- *Need to maintain focus on the longterm aim, to release it safely into the sea. Does this option move in the wrong direction for this?*
- *Choose a location for the seapen*
- *What length of time are we willing to hold it in captivity? Habituation issues*

euthanasia options plus protocol

- *Ballistics is the DOC/NZ SOP.*
- *Medical euthanasia not tested nor experience with cetaceans. Wellington Zoo vets have offered to support DOC with any euthanasia decisions.*
- [redacted] *has asked for it to be videoed to help learning.*
- *Necropsy – could help to inform for future (not supported by mana whenua?)*
- *Recommend: decide on euthanasia protocol – ballistics is recommended.*
- *Getting appropriate expertise on standby for euthanasia – an experienced operator is strongly recommended to ensure it's done properly, particularly given the high public profile.eg* [redacted] *etc*

- *Protocols for shooting to be planned in advance – eg where to do this (move the orca elsewhere?), position of shot(s) in head, number of shots to be fired, crowd control*
- *Noted that euthanasia might need to be done at short notice if the orca deteriorates.*
- *Can criteria be set to decide when this decision needs to be made? – critical health status thresholds etc.*

Moving the orca elsewhere
- *Might be needed for euthanasia, or to get it near a release site. Protocols for this*

14/7/21
Call with [redacted] (DOC), [redacted] (Wgtn Zoo)

Wgtn Zoo is comfortable if needed to work with and advise DOC on euthansia matters. Wgtn Zoo can offer medical euthansia but note that they have no experience in this with cetaceans. Noted that ballistics is the only option in the DOC SOP. Decision on euthanasia is to be with DOC.

Health assessment – depends on knowledge of 'normal' behaviour – respiratory rate, faeces & urine, behaviour (videos useful). Whale rescue volunteers are recording all these.
Blood is relatively easy to sample and is being taken. Can detect & measure protein, muscle enzymes, 'capture myopathy', glucose (fasting state).
Data is being analysed and interpreted by [redacted] and [redacted], to provide advice to Incident Team.
Weather predictions for next few days are deteriorating. Southerly would cause trouble in the location.
Aim for as few people in the water as needed. Leave the orca to its own devices unless medical intervention is needed. Or possibly to reorient its swimming or avoid self harm.
Bottle feeding should be discouraged and tubing is preferred.
Habituation is a significant risk (eg from US experience). The 'Springer' example from USA is not a very comparable situation to this one (e.g. older juvenile, very well studied pod).

Additional notes:

Satellite tag *on the orca pre-release is probably a worthwhile option.*
Massey have asked for any euthanasia to be filmed for future study.
Personal safety is important for people in the water.
Scenarios have been outlined by Ian Angus, including:
Relocate the calf with natal pod, or another pod with a calf (ie suckling mother)
Estimated that there is a one-week window to maintain orca health.
Bolted tag appears to be acceptable to main interests. (Suction tag is less reliable).
Euthanasia *– will need a plan for effective implementation, public and personal safety, crowd control. High media interest in the event.*
If released, what then? – monitoring, further intervention? One chance only?

Discussion with Ian Angus, 15/7/21:

Technical Advisory Group (TAG) *is needed, to include expertise in:*
- *Veterinary Science*
- *Animal welfare & Animal ethics*
- *Orca expertise*
- *International experience*
- *DOC advice*
- *Onsite experts*
- *Chair of the TAG also needed*

Role of TAG to discuss scenarios and inform ethical/welfare issues.
TAG to include c.6 (max.8) people. TOR document to be developed, with key questions, ethical decisions, skills needed, estimated 1-2 week duration (with shifts?).

TAG to work separate to the Incident Team? Possibly reporting to higher decision makers eg. Mike Slater/Marie Long?

Satellite tags are held in NZ, owned by IFAW and held by [redacted]. [redacted] (DOC), [redacted] ? (Massey) are trained in attaching these. Two of these people should be present when being attached.

Welfare protocols are being developed by the vets – monitoring of vitals (e.g. respiration, blood, bowels, behaviour).

Considered that releasing the calf into a pod with a calf may be an acceptable scenario.
Estimated that 2 weeks at this site. Reloacte to a sea pen (Marlborough or Wellington?) might be an option to consider.
Some are proposing 'open water training' to get calf to follow a boat.
Decision is needed about how long the calf should/can be safely held.
Bigger decisions are likely to be elevated to Mike Slater or Marie Long.

Scenarios document drafted by Ian Angus, 15/7/21:

Scenario	Timing	Risks/Dependencies	Key decisions
Reunite calf into pod	Consider have around a week at current site	Locating pod, identifying pod, distance from Wellington	CIMS can make decision to translocate based on safety, practicality and wellbeing of orca

		WI orca not resilient enough?	(top of South Island to Whanganui approx. practical distance)
Reunite calf into a pod with lactating female	As above	As above plus question whether pod will accept calf. WI pod does not accept calf?	Ethics/animal welfare about pursuing option. CIMS decision based on advice fromTAG.
Relocate calf to sea pen until such time can reunite into pod or a pod	Might be necessary in two weeks. Might be needed for up to 6 months. Approx $1m to set up. $0.5M pm to run.	Suitable site – Marlborough? Ethics, logistics, media and public backlash, precedent.	Ethics/animal welfare. Decision outside of CIMS based on advice from TAG.
Open water training (gradually remove calf from pen as weaned with aim to reunite into a pod)	Might take up to 9 or more months.	Calf needs to be weaned. Best scenario 9 months. Pod may not accept calf.	Ethics/welfare. As above.
Deterioating orca leading to decision to euthanise	This is something that sits across all options. Health protocols in place.	Public and media backlash	Immediate decision can be taken within CIMS, under advice from TAG and iwi. If we take up longer term options need to ensure SPA and protocols in place.

Appears key to form a TAG (vets and animal welfare expertise domestic and international, marine mammal science, iwi). Will need include Orca Research Trust. Chair, participants, TORS… Marine Species team can lead but might be better run by someone with animal ethics background.
Do we need a decision maker role outside CIMS for these bigger, more complex scenarios. Cost, ethics and reputational risks are significant.

Discussion with [redacted] 16/7/21

Sat tag

We understand that [redacted] and Ingrid Visser and IFAW (Int. Fund for Animal Welfare) all support applying a bolted satellite tag to this orca.
A concern expressed is that the tag could be blamed if things go wrong.
IFAW are world leaders in sat tagging. They could also direct us to use it for this purpose.
Preference is for [redacted] and [redacted] to be the ones to do it.
Need to check if [redacted] able to assist. [update 16/7: [redacted] is back from trip away and could be available, and has spoken to Ian Angus]
If immediate action onsite is not assured, the tag could be applied early and/or not turned on (it will run for c.2 months). IFAW will provide their tag at no cost.
IFAW could possibly make a video presentation to incident team/decision-makers to explain tag application.

Expertise in animal ethics

- *Meg Rutledge*
- [redacted]
- *NOAA*
- *Not much experience in NZ for cetaceans*
- *International?*
- *Loro Parques (Teneriffe, Spain) – eg hand rearing of 'Morgan' and other orca.*

Discussion with Meg Rutledge, 16/7/21

- *Meg has experience in animal welfare, but not marine*
- [redacted] *is DOC's Animal Ethics Chair (on leave?)*
- [redacted] *not on AEC, but could be a good contact.*
- [redacted] *(Seattle Aquarium) has experience in transporting cetaceans etc.*

Discussion with [redacted], Seattle Aquarium, 16/7/21

Experienced with transport of small cetaceans (but not orca).
Discussion mostly confirmed actions already being taken.
Temporary pool holding is OK. Monitor health condition.
Movement of orca could be done in a large container with the orca suspended in shallow water covering fins, with open cell foam [polystyrene?] around it for support. US aquariums have ready-made equipment for this sort of work.
Military could be considered to help with transporting (by vessel, aircraft or land).
Biological data will help guide decisions. Hard to set predetermined criteria for decisions, but the data should 'speak for itself', ie it should become obvious when significant action is needed.
Formula feed will only last so long and is unlikely to fully replace mother's milk.

Discussion with Sarah Owen, 16/7/21

Sarah has been engaged to work on:
Protocol for short term health

- *Scenarios – what's the process, who makes decisions, who gives advice. Completed today.*
- *Medium plan – how far out to consider, what are we looking at? To be done by mid next week.*
- *Euthanasing – on ethical grounds. If health deteriorates, how long will be too long to allow it to stay alive? Practical matters of who would do it and how – e.g.* [redacted] *?*

Discussion with vets & DOC, 16/7/21

[redacted], (+[redacted] & Ingrid onsite), Kirstie Knowles.
Updates on status were given.
Lifting method into pool (designed mattress, flatdeck trailer, sling/stretcher, hiab) was outlined, operation took about 20-30min.
Key agreements/actions:

- *The pool is for very temporary holding.*
- *Feeding should increase from 4 up to 6 per day (same total volume? T.b.c.), no feeding necessary after about 10pm. Noted that orca has been showing discomfort after feeding. Feeding is by tubing.*
- *OK to take a faecal swab, but can be difficult.*
- *Sedation protocol – agreed that the preference is to avoid sedation prior to release. But it is a 'good tool' to have available.*
- *Urine collection – 2-3 times/week. 2ml only, any time but morning is good.*
- *Blowhole sputum sampling – 1/week at most.*
- *Minimise intervention – only take samples that are needed for proper assessment.*
- *Girth to be monitored.*
- *DOC contact over weekend to be confirmed.*
- *Water needs constant flow (preferred) or filtering, to maintain water quality.* [redacted] *provide advice on water filters.*
- *Subject to Operations approval, the seapen could be extended to deeper areas for low tides, and can be shortened at high tide to improve human safety*
- [redacted] *to set up a google sheet on OneDrive, for all data to be entered. Data collection and sharing & combining is important.*

Advice collated by [redacted] from overseas veterinary experts as of 18/7/2021.

12th July 2021

- **Dr [redacted] - Animal Rescue Veterinarian and Director – Marine Mammal Rescue and Research (IFAW)**
  - If dependant and no hope of reuniting, euth would be the most humane option. If at all possible satellite tagging would be the only way to know (survival) for sure if they do release it.
  - SeaWorld vets would be the best resource for hand-rearing an orca calf. But it wont be releasable if they do this.

13th July 2021

- **Dr [redacted] - Animal Rescue Veterinarian (IFAW)**
  - To be honest, if this stranding occurred here, I would euthanize that animal since the likelihood of success is almost non-existent based on my experience. Pods don't abandon calves without reason, so it is likely that this animal had a pre-existing condition that led to its stranding and abandonment. But I realize that the situation there may be different from a political and cultural standpoint.
  - It is important to point out in general, that cetacean rehab is expensive, labor intensive and has a very low success rate historically. I fear that this calf may die within a few weeks if held in care. If it does survive and regains its health, its most likely outcome would be permanent placement in a managed care facility since likelihood of successful reintroduction to a pod would be almost nil. I really hate to be the pessimist here, but I think it is important to be realistic when taking on such an endeavor. If the pod is not relocated in the next day or two, the decision should be made whether permanent placement or euthanasia would be the most humane outcome for this animal. As more time goes on, like you said, likelihood of reintroducing to a pod is getting smaller and smaller. So I would say holding for 3-4 days total with an absolute MAX of one week (obviously would have to tube feed it ASAP) is your window for releasing.
- **Dr [redacted] – Clinical Associate Professor -Aquatic Animal Health (University of Florida, ex Sea World vet)**
  - Based on the photo that is a very young calf and would need formula support as well as antibiotics most likely. The video would be helpful to gauge activity and mental capability. Do you know if male or female? Is it approaching you, aware of you? Vocalizing? I am sure it is challenging for you guys to consider options without the options for raising it. Here it would go to a facility for all that is needed. Odds of replacing it with the pod are hard to imagine but sounds like the only choice though not sure they would take it back. Would consider the mom was possibly inexperienced to have left it behind. Not sure of the state of your approach there in NZ on orphan calves, facilities and options for captivity

14th July 2021

- **Dr [redacted] – Vice President of Conservation Research and Animal Health (Sea World)** in response to question about drying off time
  - It would take approximately 30 days for the cow to completely dry up. In addition, many cetacean species have spontaneously lactated if a calf was introduced. With that being said, the milk is typically, initially (and maybe always) of lower quality and the calf would need to be robust enough to withstand the transition.

15th July 2021

- **Dr [redacted] - Head Veterinarian & Director, Animal Health (Vancouver Aquarium)**

- I think most people would agree that the choices for a dependent calf are quite limited. The calf will need it's own mother or to be successfully adopted by another female or females. The chances of that are unknown but your own experts in this particular group of whales are probably the best resource on where the pod might be and what the logistics of getting a calf to them might be. How long you have to locate and reintroduce the animal is unknown. Otherwise, in our area, the animal would be deemed non-releasable and a suitable long term home would be found. If no home can be found and the animal cannot be reintroduced then your options are quite limited.
- Folks do release dependent calves on their own but, again, most people think this is a bit cruel most likely. Some animals like that may become nuisance animals but I suspect this calf is too young for that. If that is the choice offered then I would at the very least try to attached a tracking tag so some kind of objective outcome can be determined to help collect evidence for future decision making.

- **Dr [redacted] - Sr. Veterinarian SEA Animal Health and Rescue Hospital (Sea World)**
  - We appreciate all your efforts for trying to support this calf and I echo [redacted] comments about disposition of a dependent calf. If a suitable long term home is not available in NZ or Australia then you and your Team will need to make a decision on how long to continue the supportive management of the calf … I agree, that with each day the outlook for a successful reintroduction wanes and the overall welfare of the calf will weigh heavy into the decision-making …

- **Dr [redacted] – Vice President of Conservation Research and Animal Health (Sea World)** in response to question about spontaneous lactation in wild populations
  - I don't know if it has been confirmed in wild populations. Alloparenting appears to be common in wild cetaceans, but I don't know if it includes induction of lactation. My guess is that enough lactating females would be present in a pod to potentially be a source if needed.
  - However, [redacted] is right, this calf appears to have about zero chances of survival in the wild. Finding its pod would be an interesting experiment, but do you really want to put the animal through this experiment knowing that the pod left it once already (I don't know the circumstances behind this stranding so I am making a large assumption) and would probably not welcome the animal back into the group for the same reason it left it the first time.
  - Experience with dependent calves would indicate that it is non-releasable. In my opinion, If you can't care for the calf long term and the government is unwilling to move it to a facility that can, you should humanly euthanize it sooner than later.

17th July 2021 - In response to length data and request for updated age estimate

- **Dr [redacted] – Vice President of Conservation Research and Animal Health (Sea World)**
  - There is a large predicted error. However, put the total lenght data, along with the yellow eye patch and fetal folds would all point to a very young animal < 3 months.
  - All information indicates that this animal is non-releasable.

- **Dr [redacted] - Sr. Veterinarian SEA Animal Health and Rescue Hospital (Sea World)**
  - Thank you for the measurement data, glad [redacted] was able to respond with data, our last calf in 2014 was 190 cm at 81 days and 230 at 132 days, so agree that calf most-likely < 3 months of age.

- **Dr [redacted] - Animal Rescue Veterinarian (IFAW) –** In response to updated age.
  - Unfortunately with that information, I do not feel it would be humane to release this calf now unless a lactating female could be confirmed in a pod if located (small calves present) or until it is fully weaned (many months). At that point, after being in captivity for so long I doubt he would be able to assimilate back into a pod. One can always hope but the window on that would be extremely small.
- **Dr [redacted] - Head Veterinarian & Director, Animal Health (Vancouver Aquarium)**
  - Having been in this situation a few times in my career I know that you are likely going to be faced with some difficult decisions. It sounds like you have a calf that is responding to care and you have a care and monitoring plan moving forward. I understand clearly that the primary objective is re-unification with other whales. I think everyone wants that of course. However, are there any thoughts at all at trying to place this animal should it not be releasable or is that out of the question? Obviously we have COVID issues limiting some options but are any of the Australian facilities able to provide a home for a time? I do not mean to cloud the situation at all but I know a home for non-releasable animals makes my job a lot easier.

- **Dr [redacted], Veteraianarian (Loro Parque)**
  - With a size of 2,15 m - your calf will probably be about 2 to 2,5 months old (the size of our male calf at that age).

Emails

[redacted] (googled: animal welfare & cetacean experience, Australia?)

From: [redacted] *(googled: animal welfare & cetacean experience, Australia?)*
Sent: *Wednesday, 14 July 2021 12:10 AM*
To: *Enquiries <enquiries@doc.govt.nz>*
Subject: *Orca calf handling*
Hi there,
I am writing to express my concern for the wellbeing of the orca calf being kept at Plimmerton. Protocol regarding cetacean rehabilitation is minimal human contact to prevent the spread of zoonotic diseases and avoid the animal becoming habituated to humans.
The volunteers have been excessively interacting with the calf, petting him, rubbing his belly, "talking" to him, calling him over by splashing the water (reinforcing the behaviour with more petting) - its highly concerning to see such a lack of concern for the very real possibility of the calf becoming reliant on his human caretakers. Habituation to such an extent creates an animal that is unable to be released as they quickly become nuisance animals and a danger to themselves by approaching boats and people.
There does not need to be more than four people in the water with him either. I understand the excitement of working with an orca calf, but cetaceans are highly susceptible to habituation and this is what makes them so challenging to rehabilitate.
Marine mammal care specialists have brought up these concerns with Whale Rescue.org and their comments are being deleted or shut down. The world is watching and there is an appalling example being set here. Contact should be kept to a minimum with only assistance provided for if the calf is unable to swim by themselves.
It's important that New Zealand sets an example of respectful and appropriate rehabilitation protocols that don't involve turning the animal into a petting zoo attraction. Not just for the country but for the rest of the world.
I hope you will consider these concerns and understand that I am reaching out because myself and my colleagues are wanting the best possible outcome for this calf's survival.
Kind Regards,
[redacted]

[redacted], stated as a marine scientist who has worked with orca in BC & Washington State.

From: [redacted] *>*
Sent: *Wednesday, 14 July 2021 11:26 AM*
To: *Enquiries <enquiries@doc.govt.nz>*
Subject: *Reporting illegal activity - Marine Mammal Disturbance - Toa the orca calf under Dr Ingrid Visser's care*
Tēnā koe Department of Conservation
I'm writing to report a marine mammal disturbance regarding Toa the orca calf under Dr Ingrid Visser's care. I am a qualified marine scientist who has worked with orca in British Columbia and Washington State and I have an advanced understanding of marine mammal rehabilitation. I strongly believe that the systems and processes Dr Visser and her team have in place are a Breach of the Marine Mammal Protection Act 1978.
I have listed my key observations and concerns below:

1. *Dr Visser is recruiting volunteers for what appears to be a 'petting zoo'. Volunteers are members of the public wanting "interaction" and are not qualified marine medics. When I volunteered, Dr Visser explained that Toa was lethargic and hungry but she would stir him to try and get an "interaction" with him and us. She then proceeded to speak 'whale' to Toa and roll him onto his back so people could tickle his belly. Although there is scientific evidence that captive orca respond to touch, there is no data to support touching and handling a wild, un-weaned orca calf is providing any benefit. I consider this as disturbance and harassment to a marine mammal which is a breach of the Marine Mammals Protection Act 1978.*
2. *Dr Visser is advising volunteers and the public that Toa likes to be touched, scratched and handled and she is allowing 1:1 interaction with Toa and children – again, this is a breach of the Act and results with harassment on every volunteer rotation. I also have concerns about the take-home message this is providing to the wider public (i.e wild orca "enjoy" human interaction).*
3. *After Toa was supplementary fed last night, Dr Visser explained that Toa had attempted to take a bottle – a huge success as this could allow her to "train" Toa to bottle feed. I have concerns about the long-term goals here. Can a bottle-fed calf successfully be reintroduced to the wild? Is this level of human interaction going to make him dependant on care?*
4. *The use of PPE was only made mandatory due to public pressure. Whale Rescue were originally advising against the use of PPE. This advice was going against best practice for marine mammal rehabilitation and raises health concerns (i.e transferring zoonotic diseases to humans and humans transferring disease to Toa if he is immunocompromised). Vet results are still pending on his health so interaction with Toa should be limited to professionals.*
5. *Misinformation about reintroducing Toa with a pod. Dr Visser has been advising the media/ public that Toa can be adopted by any pod. However, it has come to my attention that Toa not being weaned causes issues here – i.e only a lactating mother could take him. If this is the case, a long-term strategy for Toa needs to be developed by the Department of Conservation.*

In addition, the Department of Conservation is obliged to give effect to the principles of the Treaty of Waitangi under Section 4 of the Conservation Act 1987 and acknowledge the cultural, spiritual historic and traditional association with marine mammals. Toa is a sentient being and Dr Visser and the volunteers are not respecting his mana.
This situation is an example of anthropomorphism getting in the way of good science and animal welfare. This is not Free Willy.
I urge you and Ngāti toa Rangatira to re-consider Dr Visser's practices and consider alternative options for Toas care. We all want the best for Toa – but establishing a petting zoo for a lone and starving calf is not ok.
If you have any questions or clarifications regarding the above, please contact me via email or on [redacted].

Nāku noa, nā
[redacted]

[redacted] (experience not known)

I'm sure someone has already thought of this but just in case !!! . . .
Have recordings of the calf been made and sent to the doc boat? Is it possible to emit the calf's sounds far enough through the water to lure the orca pod???? Just a thought.

[redacted] (experience not known)

I read that if you have a Jar of sand from Mahia, and sprinkle this onto a beach, the whales will come.
Please try it, I can't get there myself. Baby Toa needs help. It was written in a book from many moons ago. I read it while researching my tūpuna.
Please can someone arrange this? I am unsure which Mahia it should be, so it's best to try them all together.
I would come down myself but I have work commitments and I believe your team can make this possible. If nobody replies by Tuesday I will begin the mission myself.
Just try it, I know there are not many who have read the book, and I think it doesn't hurt to try something like this. Especially for baby Toa.
Kia kaha, Kia toa, Kia manawanui.

Documents referred to in this directory

Juvenile Orca Mana CIMS structure

2021

Version History

Version	*Date Written*	*Status*	*Approved*
1	12 July 2021	Draft	[redacted] – Acting Operations Manager Kapiti Wellington District

Prepared by
[redacted]
July 2021

1. Introduction

On Sunday 11 July 2021 at about 2.15pm a juvenile orca was located stranded on the north side of Porirua Harbour. At present the animal is alive and is held in the salt water by Project Jonah.
Up till now the objective has been to locate and reintegrate the orca calf the family pod.

2. Goal

To decide and act on the best approach for the welfare of this animal.

To ????
.

3. Roles and responsibilities

A Coordinated Incident Management System (CIMS) approach has been adopted to manage emergency situations. Incident management can be described as a series of well defined roles and responsibilities that link together to enable the best possible management of an incident. The Organisation chart below identifies the individuals assigned to the different roles.

Figure 1 Juvenile Orca Mana organisation chart

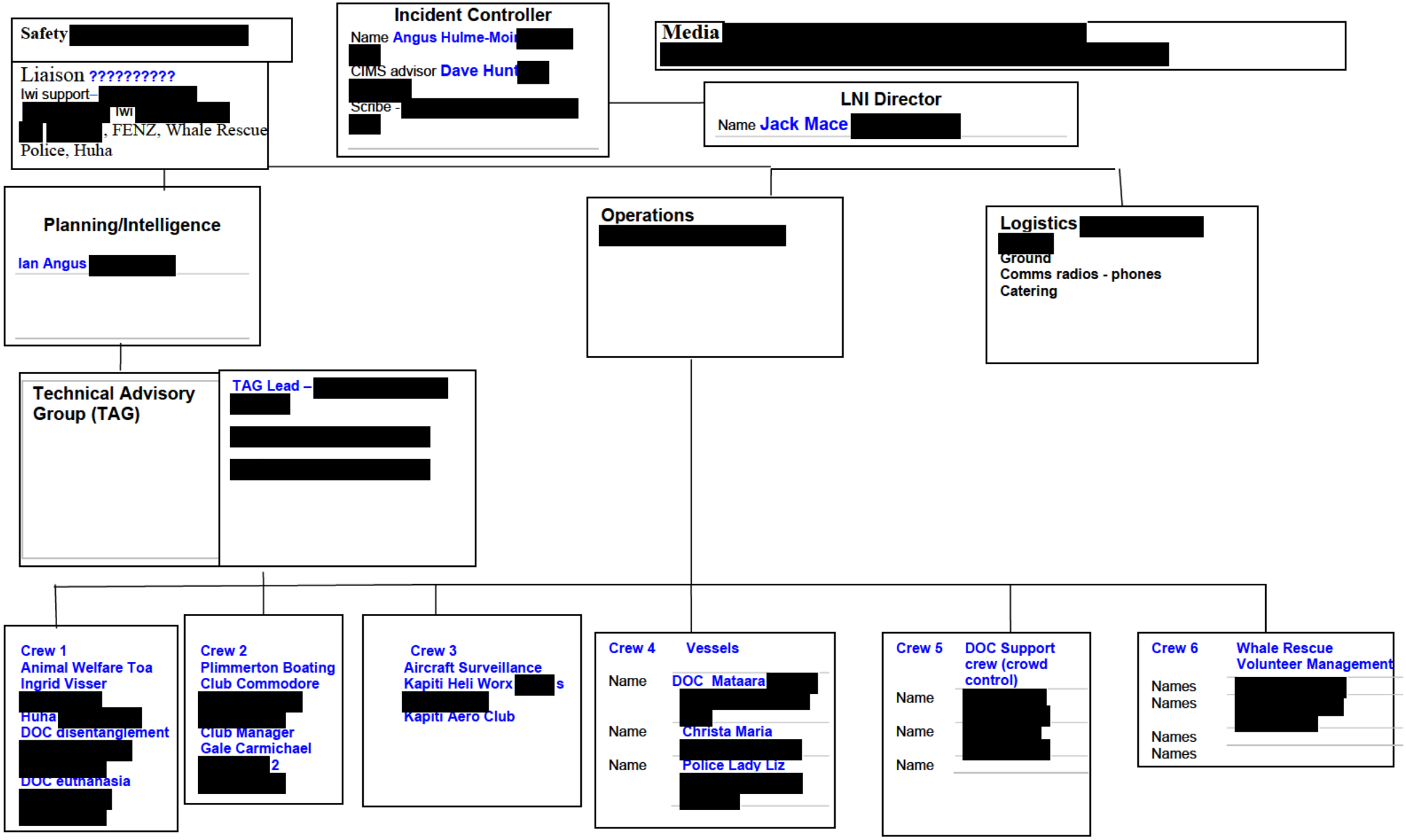

Table 1 Descriptions of different eradication team roles

Role	Description
Operations Manager	The Operations Manager is responsible for all staff management issues (including Health & Safety) and for sign-off of the budgets.
Incident Controller	The Incident Controller has the responsibility of managing the incident effectively and efficiently. All staff report to the incident controller via the line and incident controller reports to the operations manager.
Operations and Logistics	Operations and Logistics is responsible for the direction, supervision and implementation of tasks in accordance with a plan and establishing systems and procedures for the safety and welfare of all persons working at the incident. They are also responsible for providing facilities, materials, services and resources – including personnel – in support of the incident.
Planning Intelligence	Planning Intelligence is responsible for the collection, analysis and dissemination of information and the development of plans.
Technical Advisory	The Technical Advisory Group (TAG) is responsible for providing technical advice based on best practice. The TAG needs to be continually updated on the state of operations. Issues that are raised internally and externally need to be debated by the TAG members. A consensus view or options with rational is then presented to the Planning Intelligence and the Incident Controller. The TAG should also be fully aware of changes in the programme so as to provide peer review as appropriate.
Information/Media –	Information and media staff need to ensure that external stakeholders and internal staff are kept informed of developments in accordance to the communications plan.
Operations field staff	Operations staff are supported and coordinated in their various roles by the individual responsible for Operations and Logistics Manager.

4. Objectives and Actions [Not updated yet]

Table 2 Juvenile orca objectives and actions

Number	Objective/Action	Who	Date to be completed	Comments
O1	**Maintain an effective operational structure**			
A1.1	Operations Manager to maintain overview of the programme and financial sign-off		Ongoing	The Operations Manager remains the "line manager" responsible for expenditure, staff management and Health and Safety. When possible, the Operations Manager should attend the two weekly planning meetings.
A1.2	Incident Controller to lead the team		Ongoing	In addition to leadership of the team the Incident Controller needs to keep the Operations Manager informed of significant developments.
A1.3	Operations & Logistics Manager to direct, supervise and implement operation in accordance with the plan			Operations are central to successfully achieving the goal. The rest of the Team is in place to support operations. While operations are expected to work to a plan they are also expected to be proactive. It is essential that operations keep "problem solving" given that they are intimately aware of the issues on the ground.
A1.4	Planning/Intelligence Manager to develop plans and ensure that objectives and actions are clear to all staff and all staff are communicating		Ongoing	The Planning Managers key role is to ensure that all involved have a "common picture". It is essential that all staff understand their roles, the programmes goal, objectives and actions and actively ask questions and transfer information.
A1.5	Technical Advisory Group to provide technical advice.		Ongoing	Not every decision needs to be signed off by the TAG rather operations need to use their initiative. However, all the CIMS Team (especially the Incident Controller) needs to be aware of changes to the programme.
A1.6	Media and Information to inform external stakeholders and internal staff of developments in the programme.		Ongoing	
O2	**Maintain effective internal and external communications.**			
A2.1	Weekly planning meetings via phone	CIMS management team	Ongoing	Addition meeting will be held as required e.g. in response to a significant change in circumstances
A2.2	Actions captured at weekly meetings and hyperlinked to section 7		Ongoing	Specific actions, person responsible and the completion dates are recorded and tracked.
A2.3	Team internal contact list is established and maintained - Note at present all DOC individuals contact details are available on the intranet.		Ongoing	
A2.4	Team email list is established and maintained		Ongoing	
A2.5	Fortnightly updates are sent to internal staff and external stakeholders		Ongoing	
A2.6	External media requests are managed		Ongoing	
A2.7	Communications plan (DOC ????) is maintained		Ongoing	
O3	**Maintain an effective Incident Control Plan**			
A3.1	Plan is updated in response to evidence of risk		Ongoing	All operational staff should be made aware of the plan. The Incident Controller and Operations Intelligence Manager should carry out a team briefing to clarify the goal, roles, objectives and actions.
O4	**Maintain quality technical advice.**			
A4.1	The TAG leader will ensure that the TAG debate technical issues and provide a consensus view to be captured in a single document (DOC????)		Ongoing	The TAG supports operations by providing advice on technical issues

O6	**Roster of Vessels**			
A6.1	Liaise with vessel operators (Police, Plimmerton Boating Club, Fire Service, Elliot) and endeavour to get a roster up and going to ensure that the public are adhering to the marine mammal requirements.	[redacted]	Ongoing	Ministry of Primary Industries may also be able to provide assistance.
A6.2				
07	**Liaise with iwi**			
A7.1	Provide updates and consult with iwi Ngāti Toa and Hongoeka Maree	[redacted]	Ongoing	have informed and told the whale is healthy – no issues. DOC scientific advice regarding the Matariki event is that this should cause undue harm to the animal however if iwi have further concerns they need to contact the event organiser at wellington City Council
08	**Shipping issues**			
O9	**Duty officer Lower North Island**			
A9.1	Update the duty officer on the current situation		Ongoing	Completed
O11	**Collate relevant southern right whale information**			
A11.1	Provide information on the orca to the Media and information team Information required (Endangered status, population estimate, weight and length, history of the species, food source, migration patterns etc)			
O12	**Collect and manage data**			
A12.1	Collect and Manage data. Record information on section 7 below	CIMS team	ongoing	
O13	**Expenditure is planned and tracked**			
A13.1	Expenditure is well planned and tracked			
O14	**Health and Safety is planned and tracked**			
A14.1	Health and Safety is well planned and tracked			

5. Expenses

- Kāpiti Wellington DOC staff to code staff time and expenditure against Kapiti Wellington Mammal Stranding Response[redacted]
- DOC National office staff to code staff time and expenditure to ??????

7.0 Relevant documents

INFORMATION REQUIRED FOR THIS CIMS EVENT	
TITLE	**DOCDM or DOCCM REFERENCE**
FINANCE	
INCIDENT ACTION PLAN	
IAP	[redacted]
COMMUNICATIONS AND CONTACTS	
Kapiti Wellington District contacts (E.g. suppliers, adjoining landowners, concessionaires, iwi etc)	[redacted]
DOC staff	Refer to the DOC intranet
DOC Media Release	
DOC Internal Media Advisory	
AGENDA/MINUTES OF MEETINGS	
DATA AND TECHNICAL ADVICE GATHERED TO SUPPORT EVENT	
Record of TAG responses to requests for advice.	[redacted]
Technical advice received from US experts	[redacted]
Advice from 2016 Tauranga orca calf incident	[redacted]
Veterinary results and advice	[redacted]
Orca Veterinary Update 14.7.21	[redacted]

Orca incident, Plimmerton July 2021
Technical Advisory Group (TAG)
Terms of reference

Incident overall aim:
To advise on the best approach for the welfare of this animal (orca).

Reporting to:
DOC CIMS structure - decision maker (Jack Mace).

TAG Objectives:
To provide advice (identify, analyse & recommend) about:

- The range of plausible scenarios
- The range of reasonable options for managing the incident
- Best practice management of the orca
- Animal ethics and welfare
- Specific technical matters raised by the Incident Controller or other CIMS managers.
- Other matters as needed

Chair:
The Chair will be responsible for:

- ensuring that Advisory Group participants are aware of the Terms of Reference for the Group, and that the Terms of Reference are adhered to by all participants;
- setting the rules of engagement, facilitating constructive and collaborative discussion and questioning, and focussing on relevant issues;
- managing conflicts of interest, and ensuring that the objectivity of the work of the Advisory Group does not result in biased interpretation of results;
- striving for consensus while ensuring the transparency and integrity of the best available information; and
- reporting on Advisory Group recommendations, conclusions and action items to the DOC CIMS structure decision maker via the Incident Controller.

Membership:
Due to the sensitive nature of the incident, the membership will be closed and restricted the following:

- DOC Technical lead
- Ngāti Toa representative
- Orca Research Trust representative
- On-site vet representative
- International orca experts and veterinarians
- International Marine Mammal Stranding/Animal Welfare/Ethics experts

Others may be invited by exception and should be decided by consensus.
All members must agree to the standards of participation in this document and ensure invited attendees also understand their obligations as outlined in this document.

Advisory Group standards of participation:

Advisory Group participants must commit to:

- participating appropriately in the discussion;
- following up on agreed tasks;
- maintaining confidentiality of Advisory Group;
- adopting a constructive approach;
- avoiding repetition of earlier deliberations, particularly where agreement has already been reached;
- facilitating an atmosphere of honesty, openness and trust;
- respecting the role of the Chair;
- listening to the views of others, and treating them with respect;
- declaring any conflicts of interest; and
- adhering to the requirements of independence, impartiality and objectivity.

Technical advice on orca calf in Kapiti

Note: The advice below has been drafted by the Technical Advisory Group based on the information known as of 8:30 am on 13th July, 2021. This may be amended based on any further information received.

Comparison with overseas incidents

In 2002, an orphaned orca calf in the United States was successfully captured, rehabilitated, and released into pod of relatives. Faced with a similar situation here in New Zealand, it is useful to examine the differences and similarities to inform our decision-making:

US example of rehabilitation of orphaned orca calf

- 2-year-old animal from well-studied population (known calf of known female)
- Observed for 6 months swimming alone in Puget Sound, mother presumed dead
- Weaned and feeding itself
- Skin rash, worms, and increasing interactions with vessels and humans led to decision to intervene
- Captured, transferred to sea pen, provided medicine and fed live salmon for 1 month
- All feeding was remote (no human visible) to reduce dependence on humans
- Transported 250 miles in 43 metre catamaran, transferred to net pen
- Released when closely related orca swam past
- Successfully reintegrated into pod

New Zealand situation

- Unknown age, but estimated to be younger than 1 year
- Not seen feeding, still dependent upon mother for milk
- ORT have identified the pod the calf belongs to based on photos from yesterday
- No known availability of sea/net pen in NZ
- Limited cetacean veterinary resources to diagnose and treat any medical issues
- Unknown availability of appropriate food for feeding captive animal

The main difference between the US example and the present situation is the ability of the animal to feed itself. In the US, the animal was weaned and self-sufficient and NOAA had time to consider how to proceed and to organise people and resources to carry out interventions with a possibility of success. Their decision to intervene was driven by an increasing level of interaction between the animal and boats in Puget Sound, which presented a hazard to the animal and potentially members of the public. Medical concerns were only a secondary factor in deciding to intervene.

In the present situation, medical concerns are the driving factor in how to intervene. The animal is young enough that we must assume that it is unable to hunt for itself. This complicates any intervention scenario, as the animal would need to be held in care and taught to feed itself, while not developing a dependence on humans for food and thereby creating a situation where the animal must be held in captivity indefinitely. US experts have previously confirmed that this would be significantly less likely to succeed than their operation.

The US was also working with a known animal from the best-studied population of marine mammals in the world. The understood the social structure of their population, and where their orphaned animal fit in. They were, therefore, able to target the reintroduction of the animal to the time and location best-suited for a successful reintegration with a pod of close relatives. While the NZ resident population of orca is small, it is uncertain whether this animal would be accepted into a randomly chosen pod, even should short-term intervention be successful. And while the pod it belongs to is known, ORT has indicated that they are not predictable in their movements and may be difficult to track down.

Plausibility of rehabilitation and release via intensive management actions

There is no precedent worldwide for the successful capture, rehabilitation, and release of an unweaned orca calf. Any long-term intervention would require holding the calf in a confined area, then provisioning food of appropriate types and quantities and teaching the animal to capture and consume it, all without causing the animal to become dependent upon humans to provide the food. In our view, this is exceedingly unlikely to succeed. Either the animal will be unable to feed and will eventually need to be euthanized, or it will become dependent on humans for food and we will be stuck in the untenable position of long-term care.

A secondary consideration with respect to intervention is whether all of the funding and logistics for confining and feeding the animal can be sorted out. Colleagues in the US have provided information about the floating net pen (12.2 m x 12.2 m x 3.6 m) and other facilities used in their intervention, but it is uncertain whether such equipment can be sourced in NZ, or installed in an appropriate location in time to be of use. In addition, the requirements may be cost-prohibitive. Based on information provided by US colleagues, the overall cost of their intervention likely exceeded $1 million USD, with a combination of US/Canadian government and private funding being used. If the NZ orca needs to be held significantly longer than 1 month, we could expect the costs to escalate accordingly.

Calf survival in the absence of intervention

Advice received in 2016 from colleagues in the US was that their modelling indicated a 1-year-old orca could survive 19-23 days without food. It is likely that this duration will be substantially shorter for a younger animal such as this one. This is also an energetic limit of how long an orca can live before starving to death, but does not mean their organs won't be damaged and causing them to ultimately succumb to the after effects of prolonged starvation.

Short-term rehydration of the calf, as undertaken overnight, is equally unlikely to substantially change the outcome. This may extend the life of the calf while searching for its pod and ensure it is in better condition if they can be found, but will not directly assist the animal to re-join them, nor ensure its survival should they be located.

Potential for habituating the calf to humans

In the short-term, we have significant concern about the in-water interactions with the calf and the likelihood that this may lead to some form of dependency or habituation of the calf to humans. Videos on social media show numerous people in the water, often reaching out and stroking the calf. It is not at all clear what function those people are serving other than meeting their own emotional needs. The calf is free-swimming and does not need direct support at all times. If the intent is to prevent the calf from further injuring itself against the bottom or sides of the area where it's being held, attempts should be made to reduce the number of human interactions to a bare minimum. People can be moved to the edges of the confinement area, sit on the sides ready to act if needed, and so forth.

Options if reuniting with its pod is unsuccessful

If we are not successful in finding an orca pod, the only plausible options are euthanasia or releasing the calf at sea. The latter option carries significant welfare concerns and may simply result in re-stranding in a less convenient location, and we do not consider it to be a good option. Euthanasia may be socially untenable and will require careful planning to ensure it is only undertaken in a sensitive fashion at an appropriate time. The only method available under the marine mammal incident SOP is euthanasia using a firearm. In the meantime, we should consider developing a set of indicators for the health of the calf to assist in our decision-making.

Preliminary information has been obtained from experts in the US (see email and attachments at [redacted]) and there is also draft advice related to the 2016 Tauranga orca calf incident which may be relevant [redacted]). We will use this information to work with local vets to come up with advice on how to best monitor the health of the calf.

Research requests

Several requests have been received related to this calf related to a cetacean welfare project being undertaken by [redacted] of Massey University. If euthanasia is the ultimate outcome of this process, she would be interested in having this process filmed to inform her research. Likewise, should the calf die (naturally or via euthanasia) she would be interested in obtaining the carcass for a necropsy to assess whether there were underlying reasons that contributed to this incident. The technical team supports this request and we believe it will help demonstrate that we have done everything we can to understand why this incident has occurred.

Summary of advice

Our advice, therefore, is to:

1. Continue efforts to find an orca pod with which to reunite the calf, including providing liquid nutrition as appropriate and undertaking regular health assessments to an agreed standard;
2. Reduce and minimise the number of human interactions with the calf, focused on only those interactions which are medically necessary or directly prevent further harm;
3. Develop health indicators which are appropriate to assess how well the calf is doing and whether welfare concerns require a change in course;

4. Arrange secondary plans, including iwi approvals, to undertake ballistic euthanasia should the calf fail a health assessment; and
5. Make arrangements, including iwi approvals, for a necropsy should the calf die.

3 August 2016

[redacted] – DOC Wildlife Vet
[redacted] – DOC Animal Ethics Committee
[redacted] – Massey University, veterinary pathologist/marine mammal disease
[redacted] – Massey University, Professor of Veterinary Ethology
[redacted] – Massey University, Director of Wildbase

This memo summarises the opinions and concerns of the authors with respect to a planned intervention for an orca calf. We have taken a three-tiered approach, and considered triage concerns, short term factors including determining the health and welfare status of the calf, and medium to long term monitoring. It must be borne in mind at all stages of intervention and captivity that *the benefits must outweigh any harm and suffering to the animal*. We believe this includes an assessment of the realistic chances of a successful outcome (with success being defined as survival of the animal in the short term, a brief period of stabilisation and monitoring, and rapid return to a pod with (demonstrated) medium to long-term survival).

Human health and safety, as well as ethical and welfare requirements for the animal must be considered at all stages. Human safety and wellbeing must be managed by providing appropriate measures, and by ensuring all involved are aware that this animal may die or require euthanasia. The permitee should have a safety plan covering all of their activities.

1. Initial triage – decision to intervene

The fundamental concepts of successful wildlife rehabilitation is that an animal must be fit and capable of meeting the physical and behavioural challenges required to have a reasonable chance of survival in the wild. Otherwise intervention efforts are likely to result in increased and delayed suffering of the animal.

In this particular case the key criteria that needed to be addressed are as follows
1. Will the proposed intervention result in the orca gaining the necessary fitness and condition to keep up with a wild pod?
2. Will the orca already have the right behavioural repertoire to hunt, feed, avoid predators and interact with others of its species? If not, how will the proposed intervention address these issues?
3. How likely is it that a wild pod will accept a debilitated and orphaned animal (especially if it lacks the behavioural cues to establish social connections?
4. How will the proposed intervention address the obvious issue of sustained nutritional support to an unweaned animal?

The case of a wild US orca, A73 Springer, was quoted as an example for successful intervention. In the protocol used for that intervention, the following points were considered before a decision was made to intervene:

- What is the status of the individual(s) and the species?
- Is there a life-threatening injury or illness?
- What is the life history (young, dependent, social structure)?
- Is the animal(s) outside of its normal habitat?
- Was the situation caused by a natural event (i.e., death of mother, hurricane conditions, marine mammals exploring fresh water (Gulland et al. 2008))?
- Are there public safety concerns?
- Does the situation pose a threat to other species
- Are there available resources?
- Is intervention feasible?
- Is there an expectation of success based on past experience, status and number of animals, age, and length of separation?
- Is there a contingency plan if intervention is not successful?

A73 was deemed a suitable candidate for intervention and reintroduction because:

- the whale was feeding itself
- she was young (but old enough to feed independently)
- was in human care for only 1 month
- a hands-off approach was used
- she was released into her own family group

We understand that capture and feeding of the Tauranga orca in captivity has already begun, superseding some of the steps above, but we strongly recommend that the 5 bullet points above are considered before a decision is made to continue with this intervention.

2. Individual triage and captivity phase

A rapid assessment of the health and welfare status of the animal should be made, along with an independent assessment of the calf's age, as this is a key factor in the likelihood of survival. A calf that is too young to forage independently will require prolonged support and is highly likely to become habituated and therefore unable to be successfully released to the wild.

THE FRAMEWORK AND PARAMETERS SUGGESTED BELOW ARE PRELIMINARY AND ARE NOT EXCLUSIVE. THESE SHOULD BE CONSIDERED AS GUIDELINES ONLY, AND ARE SUBJECT TO ADDITIONAL EXPERT VETERINARY INPUT WHICH SHOULD BE INCLUDED AS SOON AS PRACTICAL.

Key parameters to assess the current status of the calf should include physical and behavioural parameters, including:

- Age – review data collected and get independent assessment of age
- Physical assessment – body condition, hydration status, respiration rate, activity observations
- Clinical pathology (blood) tests e.g. packed cell volume, total plasma protein, complete blood count , clinical biochemistry

- Behavioural assessment – feeding attempts, interaction with humans. Note that a calf that is calm and does not respond negatively to human interactions could be moribund rather than this necessarily indicating that it is not stressed. In addition, a rapid response to training using tactile stimulation and collection of blood could suggest that this animal at risk of habituation with the associated risks of human-orca interactions pre- and post-release (refer to the "Luna" case from the United States).

This data should be collected and recorded, and will act as a baseline data set against which to compare subsequent, regular measurements. In addition these data can, when interpreted by experienced cetacean health experts, provide prognostic information (is the calf likely to survive?). Independent experts should be consulted about the exact data required and the threshold levels that would indicate a likely adverse outcome, in which case euthanasia should be considered.

We would also strongly suggest the following:

- Procedures must only be undertaken by a qualified and experienced operator
- Stomach tubing must only be undertaken by an experienced operator
- Proper nutrition must be provided
- Type, volume, feeding frequency must be stated
- Feeding process must avoid risk of habituation to humans

Cut-off and threshold parameters should be defined and stated, including:

- A cut-off of when measured parameters indicate that euthanasia is the most appropriate action (for example, PCV and/or TP levels below XXX indicate a poor prognosis for recovery therefore euthanasia is the appropriate option for animal welfare).
- Specialist advice should be sought in determining these parameters.

The realistic chance of identifying and accessing a compatible pod must be established early during the rehabilitation phase. If this is not likely to be successful, euthanasia is the appropriate option.

3. Medium to long term requirements

It must be noted that holding this animal in a sea pen is, by definition, captivity. This is not an optimal situation for any wild animal, and should only be considered when the likely outcome outweighs the negative impacts of captivity and handling/interaction with humans. A successful outcome for this particular animal depends on it being in a strong enough health condition at the beginning of the intervention, provision of adequate nutrition during captivity, minimal human interaction and avoidance of habituation or other behavioural aberrations, and release with acceptance into a pod. To this end, the following should be established:

- A cut-off for progress in captivity i.e. once the health parameters have returned to normal, does the orca display normal hunting behaviour? If not, then euthanasia is appropriate for the welfare of the animal as release will lead to starvation, and

continued holding will require extensive human intervention which will compromise its behaviour as a wild orca.

- A cut-off point for release – after health parameters return to normal, and hunting behaviour is observed, when does the animal get released?

- Post-release monitoring should be considered essential. Demonstration that this intervention was justified would require proof that the animal survives and establishes a normal relationship with the release pod. It is not sufficient to base this on short-term observation post-release.

We also strongly recommend that the experiences from this intervention are collated and published through an appropriate platform, preferably involving scientific peer review. One of the issues highlighted in our preparation of this document is that despite there being 'multiple examples from overseas that have proved to be successful' (Visser and Foster, 2016), there is little in the way of defensible or published evidence of this. Without this, we risk perpetuating a practice that violates the welfare of a wild animal.