

### 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 13<sup>th</sup> 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. They 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.

## Update as of 18/7/21 with additional advice from overseas experts.

12<sup>th</sup> 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.

13<sup>th</sup> July 2021

- **Dr [REDACTED] (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

14<sup>th</sup> 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.

15<sup>th</sup> 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.

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

- **██████████ – Vice President of Conservation Research and Animal Health (Sea World)**
  - There is a large predicted error. However, put the total length 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 ██████████ - Sr. Veterinarian SEA Animal Health and Rescue Hospital (Sea World)**
  - Thank you for the measurement data, glad ██████████ 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 ██████████ - 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 ██████████ - 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 ██████████, Veterinarian (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).