

Transport Plan for Lolita/Tokitae

From Miami to Orcas Island

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This document has been prepared in consultation with the following people:

This plan for Lolita's rehabilitation and retirement has been prepared in consultation with:

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- Dr. Ingrid Visser - Orca Research Trust
- Howard Garrett – Orca Network

Much of this document was adapted from the Plan for Rehabilitation Training for Morgan the orca, prepared by Jeff Foster and Ingrid Visser for the Free Morgan Foundation (September 2011).

1. PRE-TRANSPORT

Lolita is a female killer whale approximately 20-21 feet long and 7,000 pounds, estimated to have been born approximately 1966. She was captured in Penn Cove, Whidbey Island WA on August 8, 1970 and was delivered to the Miami Seaquarium on September 24, 1970.

When an agreement is reached with the Miami Seaquarium and/or other responsible parties, preparations will begin to return her to her native habitat. Lolita will be de-sensitized to a custom-made stretcher (see below) and to the 'transport and rehabilitation' personnel while her current trainers and veterinarians maintain their routines and relationships with her. She will not be fed for 24 hours prior to transport. No antibiotics will be administered pre-transport. However it is standard protocol to administer low-dosage valium under veterinary supervision to cetaceans which have not recently been transported by air.

2. TRANSPORT

2.1 HEALTH AND SAFETY

A medical doctor, ideally her current veterinarian, will continually monitor her vital signs and behavior from the display tank in Miami, throughout all stages of the transport to the waters of the Salish Sea, accompanied by an assistant (who is trained in medical emergency medicine). Security escorts will be arranged and appropriate police officials will be notified for every phase of the transport process.

2.2 TRANSPORT TEAM

The transport team will consist of the attending veterinarian and his/her assistant, the Load Master, other personnel experienced or trained in transfers of cetaceans, and members of her current training and care staff, including at least one of Lolita's trusted trainers to provide reassurance to her throughout the preparation and transport procedures.

2.3 GROUND STAFF

A full 'call-sheet' with all contact details will be distributed to local authorities and all personnel involved with the transport of Lolita. Call sheet will include details such as radio channel for communication, cell-phone num-

bers, appropriate liaison personnel with local authorities, emergency numbers etc.

2.4 SECURITY

Liaisons will be made with the local authorities at both ends of the transport to ensure appropriate permits and personnel are applied. This will include 'escorting vehicles' such as police, and 'live animal' signs before and after the transport truck, where appropriate.

Spectator control (on land and water) will be liaised via local authorities. The Coast Guard will be alerted and asked to attend the seapen phase of transport to ensure that spectator craft are controlled and to provide on-water assistance and facilitate any necessary health and safety controls. Media passes will be issued to limited number of media personnel (details of which will be established in coordination with local authorities).

2.5 TRANSPORTATION TIMEFRAME

It is anticipated that total time from removal from her tank in Miami to immersion in seawater at East Sound WA will be approximately 15-16 hours. This timeframe falls well within transport time-frames for cetaceans conducted by display facilities. The flight distance between Miami and Bellingham is 2,759 miles. Approximate transportation timeframes are given in Table 1. Details for each aspect are outlined in relevant sections. (All times are given according to the 24 hour clock).

Table 1. Approximate transportation timeframes (where a range of time is possible the maximum time frame is used in the running total, although minimum times are more likely).

Section # & DETAILS	START TIME	END TIME (max.)	TIME RANGE (hours: min.)	TOTAL Minimum	TOTAL Maximum
2.7 (Loading at Seaquarium)	02:00	04:00	1:00 - 2:00	1:00	2:00
2.8 (Overland to Miami Airport)	04:00	05:30	1:00 - 1:30	2:00	3:30
2.9 (Load into plane)	05:30	07:30	1:30 - 2:00	3:30	5:30
2.14 (Air Transport to Bellingham)	07:30	14:30	6:00 - 7:00	9:30	12:30
2.16 (Unload/plane to barge)	14:30	16:00	2:00 - 3:30	10:30	14:00
2.18 (Transport/unload to seapen)	16:00	21:00	3:00 - 4:00	13:30	18:00

2.6 LOADING at Miami Seaquarium

Lolita will be fitted into her stretcher as per the protocols and details given in the Rehabilitation Training Plan document.

Loading will start at approximately 02:00 hours on day of transport, to ensure that traffic-jams can be avoided and to maximize daylight hours at the destination. Additionally, as it is unclear when the transport date will be confirmed, it is not possible to predict the amount of daylight available for the given day. Therefore, once a transport date has been confirmed the departure time from the Seaquarium may need to be modified (e.g., departure time may be 22:00 hours the previous night). Loading at Seaquarium is anticipated to take between 1-2 hours.

2.7 OVERLAND TO AIRPORT

Expected arrival time at Miami Airport (see details below) is approximately 1 - 1:30 hours after loading. Liaisons will be made with Miami authorities for spectator control, vehicle escorts etc to ensure that traffic delays are kept to a minimum.

2.8 EQUIPMENT REQUIRED

A. STRETCHER

An orca-specific stretcher designed to accommodate Lolita's length, weight, and pectoral fins (Figure 1) will be provided. The stretcher must be adequate to support the weight of Lolita. It should have appropriate 'cut-outs' for her pectoral flippers. The "pectoral fin cut-outs" are lined with anti-rubbing fabric to prevent chaffing. The stretcher will be of the style that a longitudinal pocket is sewn into the material along the each of the long edges. These will each take a single steel pole, threaded through the pockets. The pockets will have sections cut out from them to allow lifting points to be attached, thereby making the complete stretcher, containing Lolita, suitable for hoisting by a crane. See Figure 1. Lolita will remain in the stretcher while inside the transport cradle for the entire transport process (see details below). NOTE: The stretcher will need to be adjustable to allow for suitable placement inside the cradle.



Figure 1. Left. Example of stretcher designed specifically for an orca – note the 'cut-outs' for the pectoral fins and the cut-outs for the lifting points for the steel poles. Right: A stretcher being used to lift an orca.

B. CRADLE (transport box/container)

A transport cradle appropriate to Lolita's dimensions (see Figure 2 for an example) will be provided.

Lolita will be lowered by crane, suspended in the stretcher, into the cradle. Cross bars on the top of the cradle (with chains on the cross bars) allow for adjustments to be made for the suspension of the stretcher. This allows for compensation of Lolita's body position. It is important to note that Lolita does not need to be directly upright as each animal naturally tends to adjust their body to one side or the other. A 15° angle away from centered is still suitable for an orca suspended in a stretcher and buoyed by water.

After Lolita is lowered into the cradle (facing forward), baffles will be placed along upper edges of the cradle, to minimize water turbulence or egress during transport. These baffles will not extend forward of the anterior insert of the pectoral fins (i.e., posterior to blow-hole) to minimize splashes entering the blow-hole. Her exposed skin will be coated with moisturizing cream.

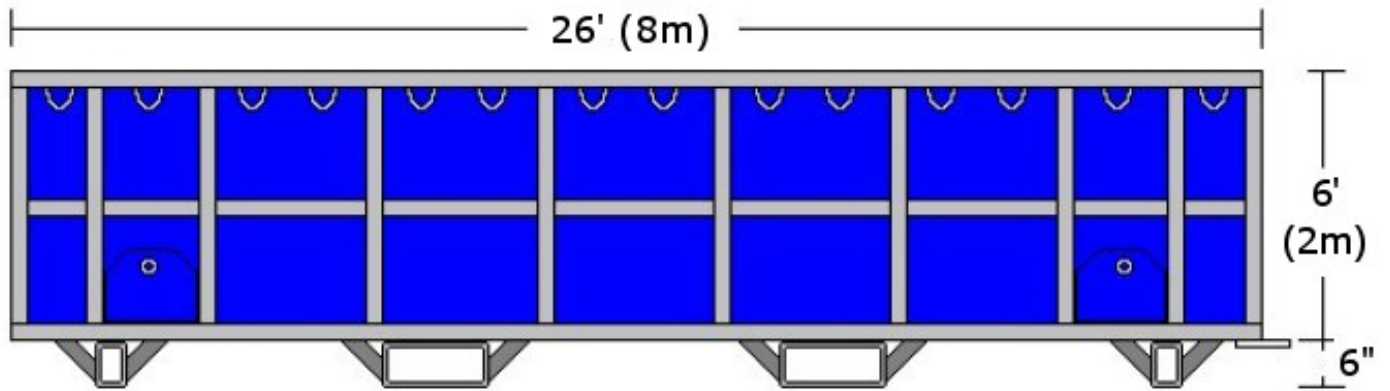


Figure 2. Cetacean transport cradle (box/container). NOTES: Dimensions are Lolita-specific. Container size must allow for Lolita’s length + 1 m at each end (i.e., Length of Lolita + 2 m). Lolita’s length is approx. 21 feet (6.3 m), thus transport cradle will be a minimum of 27 feet (8.3 m). Width of the cradle will be approx 10 feet (3 m). Water will be approximately 3 feet (1 m) deep inside the cradle. This will rise when Lolita enters the cradle. Brackets welded at the base of the cradle allow for lifting with large forklift if required. Baffles will be placed along upper edges of cradle, after Lolita is lowered into cradle, to minimize water egress during transport.

C. CRANE

A crane will be required for both the Miami and the East Sound ends of the transport to lift Lolita into / out of the cradle (see Lolita Rehabilitation Plan for details regarding lifting stretcher). Additionally, the cradle, with Lolita inside (and perhaps with water inside) may be lifted from the truck onto the barge at the Bellingham dock, unless the truck carrying the cradle with Lolita is driven onto the barge.

Approximate payload for the crane, consisting of Lolita + cradle with water, is estimated at 24,000 kg (see 2.11, Payload for details). Therefore, a 50 ton mobile or all-terrain crane such as illustrated in Figure 3 would be suitable. Such cranes are sufficient to lift and rotate a four ton payload (i.e., Lolita + stretcher) (see 2.12, Payload) in a 20 m diameter circle. This is necessary to allow for ‘swing’ from the Seaquarium tank to the cradle and from the cradle to the seapen. The diameter of the swing is calculated from the center of the crane to the center of the payload.



Figure 3. All-terrain, mobile, 50 ton crane.

D. LOADER & OR FORKLIFT

A Cochran Loader (hydraulic lifting device with rollers, see Figure 4) will be required at Miami and at Bellingham International Airports to facilitate loading into and out of the plane. The Cochran Loader allows the cradle to be lifted to match the height of the loading dock inside the plane. Such vertical lifting avoids rolling the cradle up/down the ramp onto the plane, ensuring that the cradle can remain horizontal. See <http://www.globalsecurity.org/military/systems/aircraft/systems/316-cochran.htm>

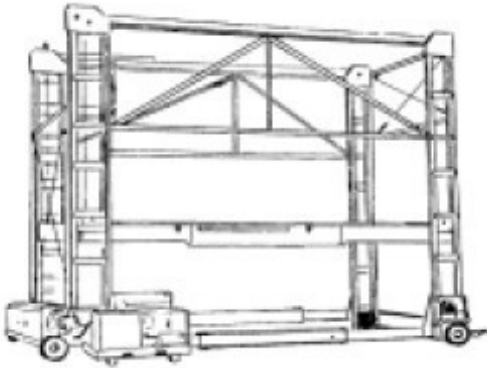


Figure 4. Cochran Loader

Although ideally a Cochran Loader will be required at both ends of the transport, it would also be possible to use a commercial heavy forklift if a Cochran Loader is not available. Note the cetacean-specific cradle has forklift brackets/spacers underneath. The cradle, with Lolita inside, will be loaded via the Cochran Loader (or forklift) into the plane. *NOTE:* Lolita will face forward during the flight and all other phases of transport.

Loading into the plane in Miami will take approximately 1-2 hours, including securing cradle, embarking personnel etc, depending on type of plane chartered. Unloading from the plane to the truck for overland transport in Bellingham will also take approximately 1-2 hours, depending on the type of plane chartered.

2.9 AIRPORT PHASE - MIAMI

Lolita will be transported out of Miami International Airport (MIA) with a runway of 13,000 ft. or 3,962 m. MIA is approximately 12 miles from Seaquarium (estimated drive time of 45-60 minutes by truck).

2.10 AIRPORT PHASE - BELLINGHAM

Lolita can be flown into Bellingham International Airport (BLI) with a runway of 6,700 ft. (2,042 m). Distance between Miami International Airport and Bellingham is approximately 2759 air miles (2398 nautical miles). Flight time is estimated at 5 hrs, 43 min. with no refueling required, depending on the type of aircraft. The distance from BLI to Bellingham Harbor (where the transport truck carrying the cradle containing Lolita could be driven onto a barge for transport to Orcas Island) is 3 miles (estimated drive time of 25-30 minutes by truck). Alternatively, Paine Field in Everett WA would provide close access to a seawater launch in Everett.

2.11 PAYLOAD

The Payload to transport Lolita will be approximately as follows:

ITEM	DETAILS	APPROXIMATE WEIGHT (kg)
Lolita		approx. 7,000 lbs.; 3,175 kg
Cradle	Steel, plywood & fiberglass	approx. 11,000 lbs.; 5,000 kg
Water	Approx. weight of water based on approx. volume of cradle i.e., (8.3 x 3 x 1 m) = 25 m ³	approx. 55,115 lbs.; 25,000 kg
Stretcher	Includes pipes, cross bars & chains	approx. 220 lbs.; 100 kg
	TOTAL	approx. 73,335 lbs.; 33,275 kg

2.12 AIRCRAFT

The best option is the Boeing C-17 Globemaster (tail loading) plane, if available, in partnership with the US Air Force. Maximum Normal Payload is 170,900 lb (77,500 kg); Cruise speed: 450 knots (517 mph); Unrefueled range: about 2,800 nautical miles (3,222 miles). Minimum landing distance: 3,500 ft (1,060 m). The flight distance from MIA to BLI is 2,759 miles (4441km). Flight time is estimated at 5 hr., 45 min.

An alternative plane would be a C-130 Hercules, the same type of plane that was used to transport the orca Keiko, about the same size as Lolita, from Mexico City to Newport OR in 1995. Regardless of the aircraft type chartered, the plane / airline must be ATA (Air Transport Association) approved to transport animals (Military / Coast Guard planes are likely to be already ATA approved).



Figure 5. Keiko in the transport cradle in a C-17 for transport to Iceland in 1998.

2.13 IN-FLIGHT TRANSPORT

NOTE: It may be required to have no water in the cradle during takeoff and landing, depending on the airline. Regardless, water in the cradle will be FRESH (in case of spills to reduce issues with corrosion). Fresh water is suitable for Lolita for the duration of the transport.

If, during takeoff and landing it is required that no water is to be inside the cradle, we will then also require a holding tank(s) / bladder(s) and pump on board – these are typically used in water transport operations. Such a holding tank will prevent excessive water movement during the acceleration and deceleration process.

Inside the cradle, Lolita will remain in the stretcher, but will be suspended and floating in water. Water level will be near the top of her eye patches (i.e., the blow hole will be clear at all times). It is important that Lolita is not allowed to float too high as otherwise she may inadvertently move in the stretcher and possibly chaff the insert points of her pectoral fins.

During the takeoff and landing phases the pilots will be instructed to maintain gradual acceleration and deceleration, and minimal incline/decline. The internal temperature of the plane will be maintained at 10°-12° C (50-54° F), the same temperature as the water inside the cradle, to ensure that Lolita does not overheat.

Water temperature inside the cradle will be maintained through the addition of small ice cubes which will be inserted into the water on the outside of the stretcher (to avoid damage to Lolita's skin). Approximately 2.5 kg x 100 bags of cubed ice (stored inside coolers such as polystyrene boxes / iceboxes) is required to maintain optimum water temperature.

Lolita's exposed skin will be kept wet by the personnel inside the cradle and by hand-pumped water bottles. Under veterinary care a non-invasive (e.g., suction-cup attachment) heart rate monitor will be placed on Lolita to observe her heart rate. Four people will be on board in dry-suits at all times, two in the cradle during transport (except during take-off and landing), with two on stand-by. These pairs will rotate in and out of the cradle.

The flight duration at a cruising speed of 517 mph will be approximately 6 hours (including takeoff/ landing).

2.14 ARRIVAL PHASE - BELLINGHAM

NOTE: As per 'During Plane Transport' Phase, we may be required to have no water in the cradle during landing (this requirement will depend on the airline). No personnel will be in the cradle during landing. During landing the pilots will be instructed to maintain gradual deceleration and minimal incline or decline.

Liaison will have been coordinated by Ground Staff (2.3) regarding Security (2.4), permits and escort vehicles (see Overland Transport Phase, 2.16) etc as required.

2.15 UNLOAD FROM PLANE & LOAD ONTO BARGE

A tug and barge (or motorized barge) will be used to transport the truck carrying the cradle containing Lolita to the seapen in East Sound. The cradle (with Lolita still inside) will be unloaded from the plane and loaded onto

a truck for transport to the barge. The cradle will be loaded in such a manner to ensure that Lolita is facing forward. Once loaded onto the barge the fresh water inside the cradle will be removed and replaced with clean seawater or water will be added if it was a requisite to land without water. The cradle will be secured. Alternatively, Tokitae (at this point in the project to be renamed *Tokitae*, the Chinook name she was given by Dr. Jessie White, who chose her in 1970) could be lifted out of the cradle in her sling and lowered into a floating pen and allowed to swim out of the stretcher, to be towed to East Sound.

It will take between 2-3.5 hours to conduct this Unload from aircraft/ Load onto barge Phase.

2.16 OVERWATER TRANSPORT PHASE

Security will be in place during transport operations from Bellingham Int. Airport to the Bellingham dock and throughout the journey to East Sound. Speed of travel will be governed by road conditions on land, and sea conditions overwater, the behavioral and welfare state of Lolita (as determined by the Load Master and Vet) and environmental conditions. Approximate travel times have been estimated based on 8-10 knots x approx. 30 miles = 3-4 hours of travel time to the proposed seapen location.

Two personnel (in dry suits) will be inside the cradle with Lolita during the Barge Transport Phase. They will each have waterproof radios (+ spare batteries) with them to enable communication with the barge pilot and the rest of the Transport Team (2.2) and Ground Staff at the seapen site (2.3). Either a floating crane suitable for lifting Tokitae out of the cradle to lower her into her natural habitat will be positioned at the location of the seapen, or the barge will be equipped with a crane.

All members of the Transport Team/ Ground Staff will lead / follow in vehicles to Orcas Island, to the location of the designated seapen and unload site (2.17).



Figure 6. Tokitae's seapen location at East Sound at Glenwood Springs, Orcas Island, Washington.

2.17 SEAPEN LOCATION

The proposed location of the rehabilitation seapen is in Eastsound, Orcas Island (48.677028, -122.882925).

The seapen will be defined by seine netting from shore to shore, suspended by floats on the surface and held

on the bottom by weights. East Sound is a closed bay with low tidal currents, with a maximum of 10 feet from mean low tide to mean high tide.



Approximate seapen dimensions = 600 x 400 feet; maximum water depth = 50-55 ft (15-18) m. Temperature is approximately 48-50 degrees.

A medical pool will be constructed within the seapen with a net is suspended from the existing dock. A gently sloping sandy beach will be lined with a rubber mat to provide a slide-out if needed for medical procedures. Alternatively a barge could be constructed with a slide-out.

The exact timing of Tokitae's placement into the seapen will depend on her responses and condition, to be determined by attending veterinarian.

2.18 TRANSFER FROM CRADLE TO SEAPEN

The crane will raise the stretcher, with Tokitae suspended in it, out of the cradle and into the seapen. The stretcher will have four lines attached, to be manipulated by divers in dry-suits to prevent spinning and to assist directing the stretcher. Tokitae, inside the stretcher, will be lowered into the water of the seapen. The four lines will then be used to assist with 'opening' the stretcher once Tokitae has been lowered into the water. The divers will be in the water ready to assist Lolita in case of entanglement, lethargy or muscle cramping.

The veterinarian and trainers will conduct appropriate husbandry and medical checks once Tokitae has been released from the stretcher and allowed time to settle into the seapen. She will be provided with food as she requests it for at least the first 12 hours, then Tokitae's diet will be formulated to facilitate the Rehabilitation

Training plan.

As it is unclear when the transport date will be confirmed, it is not possible to predict the amount of daylight available. Therefore, once a transport date has been confirmed the departure time from the Seaquarium may need to be modified to maximize daylight for the seapen transfer operation. Alternatively, it may be applicable to have a generator with flood lights on standby.

3. POST TRANSPORT

3.1 SEAPEN MONITORING

If the Load Master and Veterinarian deem it appropriate for Tokitae to be kept in the medical pool of the seapen for monitoring, she will be moved into this section for close observations, until she is considered in a suitable health condition to be released into the main section of the seapen.