

Planet Progress

November 13, 2063

Here I am, USA Space, 13 Nov, senior scientist for TNNASA or THE NEW NASA, sitting in my ETSS suit. ETSS stands for Earth Technology Space Suits. I'm writing on the edge of Europa, Jupiter's 4th moon. I am finally living out my plan to experiment if whales can survive and thrive on a planet other than ours. It is not a dream anymore.

Today as I scan the edge of the galaxy to the east, ready to activate the small antennae in the base of my collar to capture the sun's rays, I figured this is as good a time to get some writing done. My space suit is very similar to the scuba suits we once wore on earth, except mine is lined on the inside with a material called Kevlon which is a hybrid material made from DuPont fibers and Kevlar, synthetic fibers of high strength. The exterior is pure titanium, able to withstand the extreme temperatures here on Europa. The sun's rays will penetrate my suit for up to 24 hours, keeping me warm and also giving me a daily dose of Vitamin D.

I feel a slight buzz in the back of my neck and know that the antenna is slowing coming up to capture the sun. I turn my attention to the ocean. It is time to count the whales again, because it has been 10 years since I first counted them.

Sixty years ago it was evident that there could be life on Europa. NASA had sent many probes into deep space and found there could be water trapped under the moon's icy surface. Also, since Europa is pushed and pulled by the high gravity of Jupiter, Europa expands and contracts as it makes heat. This heat might melt the icy surface, so there could be one of four scientists that rotate my time here on Europa and Earth documenting the progress of life as it now exists in these icy waters. My sister and her group of technological marine biologists were able to successfully genetically modify Sei and Minke, whales that were on the verge of extinction twenty years ago. We were able to transport Ace (Sei) and Tina (Minke) to Europa to test their capability to survive and breed in Europa's ocean. My first trip to Europa was to bring genetically modified marine food to populate the ocean for the whales. I spent five years studying their growth and returned to Earth to prepare the first set of whales for travel to Europa.

On Earth, we reconstructed the Pegasus Barge so that it was bigger and was meant to hold a bigger cargo. The new rocket fuel was made of powdered aluminum and liquid oxygen. We modified the barge's material to magnesium, so that it was stronger. My sister and I developed a food injector for the whales, so they would have food during the trip. The new mixture takes the usual foods the whale eats, blends them, and pours them into the injector, which slowly drips the liquid into the hydrogen filled tanks that house the mammals on their journey into space. There is a mild sedative that is included in the food to keep the whales steady and in a sleepy state to avoid them hurting themselves on the journey. The trip was two years long, but I kept a steady pace rotating our cylinders of food and regenerating hydrogen and oxygen into the tanks to keep them alive and stable. Once we finally reached Europa, my crew and I put back together the F3O2 Rover, which was capable of carrying over 20 tons at a time. I pushed a button on my sleeve and the cylinders slowly moved forward and slid onto the Rover. With another push of a button on my thumb and a wave on my hand, I slowly manipulated the ROVER toward Europa's Oceans. We had one more hour, but on Jupiter, one hour converted into 16 minutes left before the next feeding. The whales were not going to have the food from the cylinders. My goal was to open their cylinders and use the ROVER's metal frame's ability to stretch and tip forward causing the whales to slip into the water.

It was finally time! As the sun rose higher in to the galaxy, the web like patterns on the hatch capture the heat from the sun and start to expand, pulling on each side and slowly opening it. The hatch on the cylinders expanded and the legs on the ROVER tilted forward causing the hydrogen based liquid to spill into the ocean as the whales slipped slowly out. When we first designed the ROVER, we made wheels very similar to the crawler transporter that took the rockets out to the launch pad at Kennedy Space Center, except my wheels on the ROVER looked more like spider legs. I remember going there when I was in 5th grade. We created spider like hinges that can bend once the sun's rays hit it causing it to almost fold. It would make the ROVER look like it was kneeling. As the sun's rays rose above the galaxy, the ROVER'S spiky antennae pulled the heat inward and slowly the hinges bent forward, tilting the cylinders down as the whales slipped into the water. The icy waters seemed to totally wake them up, and they thrashed about for a moment. I panicked. I could not get into the ocean with them, because my

suit was not yet completely configured for water and would not be ready until my next trip here 10 years from now. Eventually the whales seemed to settle in and stayed close to the beach as though they were not sure where they were. This was it - the test to see if they could adapt to life in these foreign waters. Suddenly there was a splash to my right, and I turned just in time to see a seal surface and splash and disappear. Like a flash, Ace bolted in the direction of the sound, and within a minute, I saw him disappear under the water only to reappear with the seal hanging from his jaws. SUCCESS!

I can't wait to count them. Ten years ago there were only 22 males and 34 females plus 57 unknown genders. I am so excited to know how many more there are. The sea is full of genetically modified food of all kinds: seals, otters, crustaceans, squid and octopi; everything these whales need to survive and thrive. As I scan the ocean horizon, I turn on my whale tracker on my wrist. It is a small rectangular shaped device built into my left sleeve and it will allow me to scan the ocean and pick up the whales from their DNA. When they were genetically modified, a small metallic disc was implanted into their deepest layer of blubber. The metallic disc would be visual on my WTW (Whale Tracker Watch) and look like a tiny grey dot. Grey represents males and orange represents females. Slowly the WTW begins to buzz and dots begin forming. I count 367 grey and 345 orange and there were about 16 red dots. These represented babies whose gender is unknown so far. Now it is time to go back to Earth and spend some time there while the F302 watches and sends my laptop the latest reports of the whales. While at Earth, I will have to go to the lab so my ETSS can be waterproof. The next time I go to Europa, I can get in the water and take close-up videos and DNA samples so I can see the whales health, growth, and living environment.