

AD313

Creative Enquiry

merPod

Tailoring

Aimee Cameron



What is a Mermaid?

In popular culture, mermaids are depicted as a fantastical melding of human and fish; they're known to consist of the head, arms, hands and torso of a human connected at the waist to a large fish tail lower section. Because mermaids and related mythological figures have so many different portrayals throughout their various formats, I needed to spend some time exploring what kind of pattern to adorn my tails with.

The most obvious route is to use fish scales, accented with an ensemble of blues and greens in keeping with more conventional portrayals commonly associated with Disney animated films, in particular *The Little Mermaid*(1) and *Peter Pan*(2), both of which feature mermaids in their most conventional form of beautiful human maidens atop delicate aquatic tails decorated with blue or green fish scales.

1 Musker & Ashman, Disney's *The Little Mermaid* (1989)

2 Geronimi et al, Disney's *Peter Pan*, (1953)



More recently, however, mermaids have begun to take a new form as TV and movies have started to envision them in a slightly more aggressive and primal way. Siren(3) is a Freeform TV programme released in 2018 that depicts mermaids as an animalistic, carnivorous species that uses alluring appearances as a deception to lure in prey. These mermaids, in this context closer resembling the Greek variation 'Sirens', are shown in contrast to the conventional image with grey, colourless skin, claws on the ends of the fingers and large intimidating fangs.

The tails sleek, grey and scaled with sharp, pointed fins that are utilised as a hunting tool to attack prey. Even the tails themselves are without any visible colour, and this depiction is a huge departing from the kind of mermaids seen in earlier depictions - even the human portion of the creature loses its human image, replaced with smooth, rubbery skin with webbing under the arms and between the fingers.



SIREN

A woman with long dark hair and glowing blue eyes is shown from the chest up, emerging from the water. She has a large, scaly, finned tail that curves upwards and to the left. The background is a dark, stormy sea under a full moon. The word 'SIREN' is written in large, white, serif capital letters at the top left of the image.

There are some interesting fine details in the designs for the TV programme's Sirens. There are smaller additional fins on either side of the tail, and sections of the creature's hips and shoulders are detailed with moss, barnacles and other plant life. Most creatively is the addition of gills on the siren's ribs. I enjoy how abstract this depiction is. This image is what I would consider to be a more realistic idea of what real-life mermaids would look like. I like both this image and the traditional style equally because I can see the appeal in both - the context of either is just as fun and entertaining as the other.

Moving forward, however, I've decided it would better suit my project goals to take a more traditional approach, using attractive scales and making more of an aesthetic statement than trying to stray from the established perception of what mermaids look like.

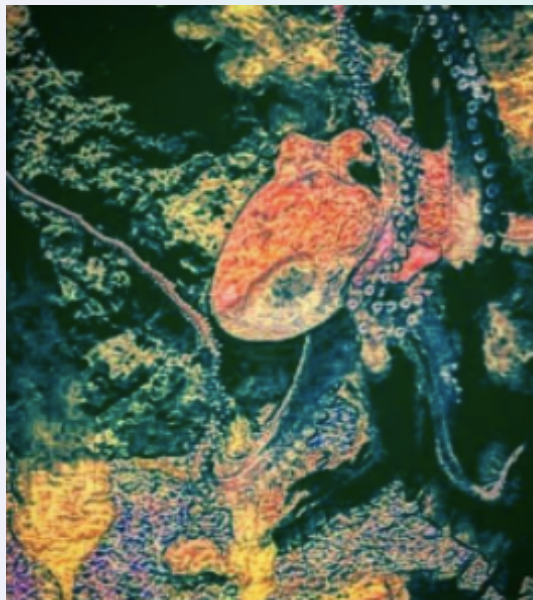
I want my tails to be a picture of beauty, all the while maintaining a non-gendered appeal. Using bright, vibrant colours will allow me to produce more variety in my designs, especially if I choose to produce more than one of them as multiple pieces are created.

Site Visit:



When I paid a visit to the local aquarium, I thought it would be good to do some sketching and capture some photographs. I'm not the best drawer, but I love taking photos and playing around with the image using filters and image manipulation. I though the octopus in particular was quite fascinating. By giving him a different colour or texture, it changes the image quite drastically.





Fishy States

DEAD



LIVING



LARGE



SMALL

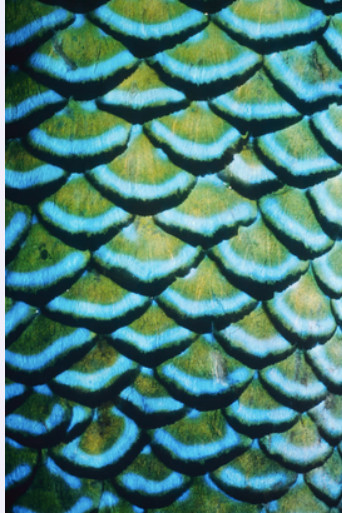


I've done a substantial amount of research on mermaid tails. In a bid for some valuable primary research, I was able to attend a mermaid show, where I was able to examine performance-grade mermaid tail pieces in motion. The structure of these tails seemed quite complex in terms of how each section interacted with another, though the tails themselves were very beautiful, maintaining a majestic flowing motion as they moved through the water. I also hope to visit a professional prosthetics lab to see real, functioning prosthetics, and perhaps even talk to a designer about my ideas and ambitions within in this project.



There are many different ways to make a silicone mermaid tail. From the research I've done so far, I've deduced that the process typically starts with texturing the inside of a box container with scales.

Once ready, silicone is poured into the box to cover. This is only one way to achieve the texture of a mermaid tail, and there are many alternative routes; some designers use fabric or sequins to create their own different types of tails, but I will have to be particularly selective with my materials to suit my project's intended function.



A measurement of the intended wearer is apparently necessary so as to determine how much material is going to be needed. This isn't an immediate problem since I only need to manufacture one piece, but in the event of mass production, I'm going to need to take this into account. A rough outline of the wearer is also used to help guide the shape and structure of the tailpiece.

The scales are then sculpted out using clay and a cookie cutter or foil folded into the shape you want. The scale sheet should be completed in a box so silicone or latex can still be poured into the container.



Exploring the Fish

It was perhaps a relatively unfair environment to criticise the tail's realism since I had fresh observations of real fish in other exhibits, but in any case I would never have compared them to real scales; they just didn't quite achieve realism. Even so, I was still very attracted to them and what detail they did boast.

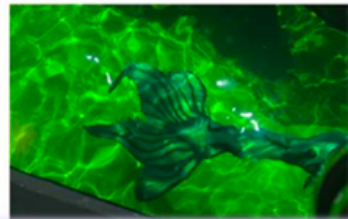
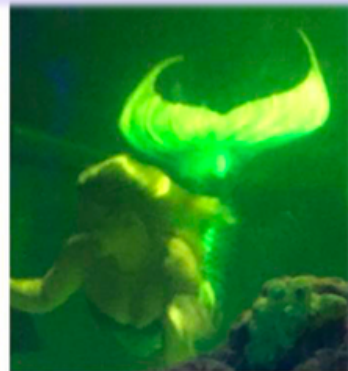
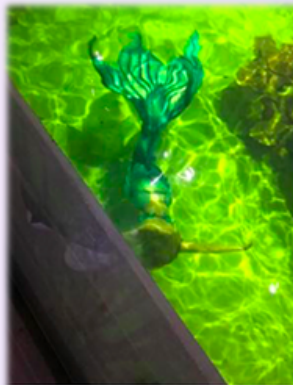
I also took the chance to see some living fish and other aquatic life whilst at the aquarium. I acquired all kinds of primary research including sketches, photos, notes and valuable data about the behaviour and movements of different kinds of sea life. This information was very instrumental in producing my own preliminary designs, giving my some dependable reference points to help better achieve authenticity.





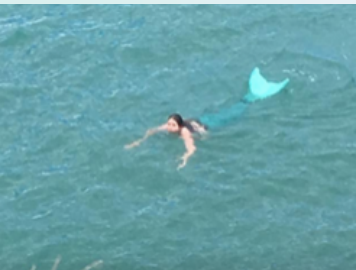
I wanted to be a bit more comprehensive in my primary research, so I visited a local fish market to see real fish in a different context. Observing dead fish and comparing them to live ones in the aquarium was quite an interesting transition visually; something about the drastically different states had a huge impact on the aesthetics. The scales on the fish market stock were so much more devoid of colour and texture, replaced with quite a universal colourlessness. I couldn't help but notice the eyes on the dead fish; it was a bit harrowing to see the stillness, even sadness in their lifeless state. Generally, the overall aesthetic was surprisingly different between them.

I was fortunate enough to catch a live mermaid show at the local aquarium. Aside from enjoying the performance, I wanted to take the opportunity to get some hands-on primary research that might enlighten me in designing my tails. The show was a performance by a troupe of aquatic dancers dressed as mermaids, complete with functioning tails and accompanying accessories. They were swimming in character around a open water exhibit, which gave them plenty of room to move and gave me a perfect opportunity to make notes watching both from above the water and through the underwater observation windows. The tails used by the performers were very heavy-duty. I could tell they were made using a silicone-based material, and they looked very detailed in their illustration - individual scales were visible even from a distance, but from watching the performers they seemed to be a bit too heavy for them to move efficiently in. Furthermore they didn't seem to be properly fitted, and didn't seem so secure during the more bible movements.



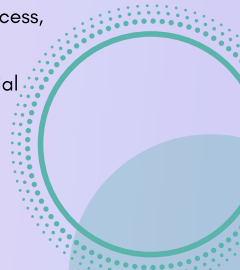



*Sea Life
Mermaid Show*



My interview with the local jersey mermaid

I was able to acquire an interview with a local free diver who uses mermaid tails as a part of a performance. I asked her a series of questions about what it's like using the tails and monofins in general, as well as any difficulties to expect. She chose to remain anonymous. Her answers were helpful in every regard; she told me that in the beginning it was difficult being forced to use both your feet at once, but with some intense training and practice, it became a much more automatic process, so much so that she described it as "like walking". She also admitted to me that she was quite obsessed with mermaids and had always wanted to be one, so I was able to speak with a potential client at the same time.





I used the opportunity to gain some useful demographic data which might help influence my project's design based on specific requirements from a prospective customer.

She also told me about the strange sensation of returning to swimming with freed legs once she's spent time using her monofin. She told me that she much preferred swimming with her mermaid tail as opposed to swimming freely, though she suggested that may have something to do with her strong affinity for mermaids.





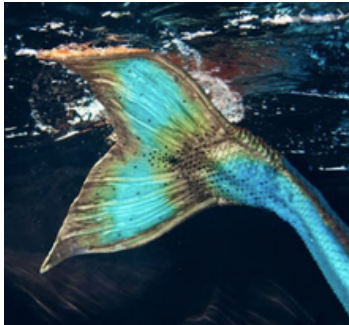
freediving

A big factor in the use of a monofin of any design is free diving, and all the considerations involved with it. Free diving is a form of underwater traversal undertaken by divers where an entire session is undertaken on a single breath of air, without the use of breathing apparatus. Free diving is a popular hobby amongst diving enthusiasts, and is generally done for recreation rather than any kind of profession.(6)

That being said, there are still parts of the world that use free diving as a means of fishing, as well as international sporting events that host competitive free diving, either in speed or breath-holding. Free diving naturally comes with its own risks since no mechanical (7) safety precautions are used. Free divers commonly use monofins when diving because of the kind of speed they can achieve with a fin with a larger surface area. In the case of my mermaid tails, it's safe to expect a wearer to use it as a free diving tool.

6. Wikipedia, Freediver with monofin, ascending,

7. Aquaview online scuba magazines, How to Freedive: The Basics of Freediving, 2018,





Cameron Stalheim

Cameron Stalheim creates mixed-media sculptures that indulge the stuff of nightmares. His most recent work, and then I saw Colby on the Street and my fantasy died, is a striking depiction of a collapsed merman taking his last breaths. Several times longer than human height, the sculpture confronts us with an image of death: in this case, the death of our collective childhood fantasies (who didn't want to live among the mermaids when they were young?).

Another recent piece, Currents, utilizes an aqua resin to create glimmering, watery reflections of the wooden figure: the body of a woman clawing through the water's surface, desperately gasping for air. With Stalheim's mastery over a variety of materials, from bronze to plastic to wood, one might assume that he has a long career behind him when, in fact, he just completed his MFA at Maryland Institute College of Art this year. It will be interesting to see where this young artist will go next.

Hi . Fructose new contemporary art magazine, Cameron Stalheim's Sculptures Indulge Dark Fantasies

by Nastia Voynovskaya Posted on August 20, 2014



Producing the Monofin



One of the most important parts of a mermaid tail's structure is the monofin. The monofin is what propels the wearer forward in the water in the same manner as a dolphin, hence why monofin technique is often referred to as "dolphin swimming". Unlike typical dual flippers, a monofin uses only one flipper to propel the user through the water, and requires a lot of effort and technique to use effectively. It also needs to be able to withstand a lot of pressure as it supports its user's weight by itself, moving a lot of water with its larger surface area.

Monofins are made in a number of ways, and using a variety of different materials. Most are made from either silicone, plastic, neoprene or any combination of these. The materials used need to be thick and sturdy, and all three of these common materials can be made to be strong enough to withstand the water without taking damage. The surface of the monofin can be varied too; some are smooth and slightly curved for a more aggressive impact, whilst others are ridged and shaped to accommodate the flow of the water.





I also think that if I get too creative with my designs, it will convolute the image and run the risk of turning audiences away if they don't immediately identify my pieces. If I'm planning to produce a business plan to go with my project, I will need to think about audience demographics; many people who buy mermaid tails do so because they want to associate themselves with the image of grace and elegance that mermaids typically denote.

One of the biggest inspirations for designing the scales of my tail is American tailor *The Mertailor*(4) who specialise in mermaid-themed swimwear and gear. Their designs are exactly the kind of thing I envision when planning my own tails, and they will serve as a valuable reference point when trying to produce designs of my own.

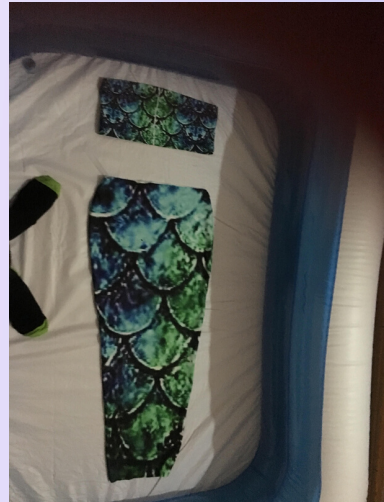


5. mertailor, Eric jonathon ducharme, <https://www.themertailor.com/about-us>

Producing the Tail Interior

The body of a mermaid tail is an additional piece applied to the monofin for largely cosmetic purposes, and is far less commonly used in conventional diving practice as a monofin by itself. The technique of using a monofin in the water requires that the wearer keeps their legs close together as they move through the water, keeping the knees locked next to each other as the joints engage the various stages of kicking the water. Whilst including a tail body is mostly aesthetic, it does help the wearer keep their legs in a practical position as they initiate the swimming technique.

The interior of the tail is expected to depend on straps to allow the wearer to secure themselves and prevent the tail from coming loose. If the wearer was a prosthetic user, the tail would still be usable by way of these fastenings. The fin would be connected by additional straps for the wearer's feet, or in the case the wearer does not have feet, there will be additional straps to connect to the body straps.





There are expected to be four different buckles throughout the whole tail interior - one around the waist area, one around the thighs, a third around the legs and a fourth connecting the body to the monofin. The interior will be lined with a light spandex material with a zip on the side to help users get in and out of the tail with minimum effort. An additional zip will also be present at the connecting sections between the monofin and the tail as an emergency exit in case the wearer needs to disconnect the monofin in a hurry.

The interior of the tail needs to be flexible and durable, but at the same time suitably accommodating for the wearer. The spandex material I've chosen to line the inside compartment achieves all of these requirements; it can even provide some level of waterproofing and insulation. Any material used for the interior will also need to be able to take the shape of both the wearer's physical form and the structure of the tail's exterior.

Producing the Tail Exterior

The exterior of a mermaid tail has a number of vital requirements in order to operate effectively. Much like the monofin, the tail's outer lining will need to be able to withstand the pressure of fast, thrashy movement in the water, holding itself together as the wearer kicks the water. For this reason, I chose to make the outside layer using spandex also, like the inside.

Many tails in the industry are made of fabric and similar materials to what I've used, though there are others with more unique characteristics. Silicone, for example, is a popular but notoriously volatile choice for larger, more established tailoring companies. I would've liked to have used silicone myself since it allows for better control over the aesthetics, but my limited time, resources and budget meant a compromise was necessary.

I've created a silhouette of my tail using neoprene fabric to create the body and plastic sheet. This was to create the fence connecting the tube with a flexible glue, enabling accessibility and fluid movement.



Accessories

In the process of designing my tail, I kept an open mind about what other details besides the tail itself might contribute to my project; there are a few additional considerations both cosmetic and practical that necessitate one or two extra additions.

In trying to produce a safe and reliable mermaid tail, I wanted to find a way to help prevent complications whilst swimming, particular if the wearer is yet to familiarise themselves with the experience and techniques involved. To this end, I decided to explore the possibility of creating floatation devices, specifically bracelets and corsets. Mertailor offer a range of mermaid-themed silicone corsets that inspired me to produce my own, however



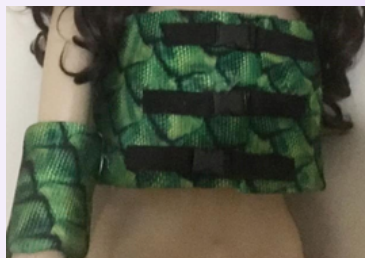
When I saw these lifejackets for dogs(8), I was comically inspired. I was looking for that final addition to add to my ensemble, and I was struggling quite a bit to think of what add-ons would compliment the whole project without convoluting it unnecessarily. Having a tutorial with my tutor and discussing the possibility of using lifejackets, I started appropriate research and came across this website. They created a Mermaid-themed life jackets for dogs, so applying my own twist on the concept, I began manufacturing my own. Samples found on this website are fantastic - the colour scheme and patterns are beautiful, and the flourish of including a fin really put a smile on my face.





Life Jackets

My Accessories

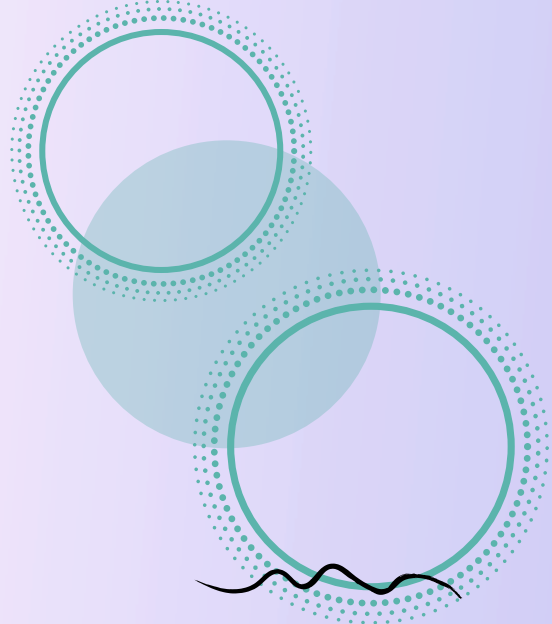


What is a Prosthetic Limb?

A prosthetic limb is an artificial replacement for a lost natural extremity, either made necessary by amputation surgery or as a result of a birth defect (Fetal Amelia).(11) According to research acquired in an interview with an anonymous source, amputations also become necessary when blood distribution around the body becomes strained, so much so that extremities like fingers and toes are starved by the body so as to maintain sufficient blood supply to internal organs. This kind of anomaly is often caused by distinctive medical conditions like diabetes and 'crush syndrome'.¹²

11. oman medical journal, fetal Amelia: Achse report ,Oman Med J, 2012

12. Amboss,



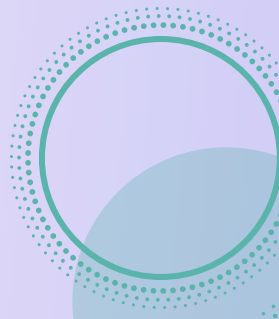
Conversion to a Prosthetic Device

My initial vision for this project was to make my planned mermaid tail a prosthetic device that would be useable by both able-bodied and disabled wearers alike. I was led down this route by my own interest in producing prosthetic limbs, but more specifically to this project, I was inspired by extensive research into the prosthetics lab in Lewes, (9) and the founder and lead designer there.

Sophie de Oliveira Barate is a special effects 'post-prosthetist', local to Lewes. The creations she manufactures are created as finishing touches on existing prosthesis as aesthetic flourishes, specific to the requests of each client. Unlike conventional prosthetists, clients can bring their prosthetic devices to her studio, The Alternative Limb Clinic, where Sophie's work will be applied post-production. Using this method, Sophie has produced a unequivocally unique portfolio of pieces that each make a powerful aesthetic statement about the wearer's and their condition. (10)

9. Sophie de Oliveira Barate, "altlimbpro", Alternative Limbs , 2016

10. Sophie de Oliveira Barate, "altlimbpro", About Me, 2016





Manufacturing of a generic prosthetic device can be done in a wide variety of ways, for a range of different purposes. For many, template prosthetics are used during the short- to mid-term recovery stages.⁽¹⁴⁾ These are usually not intended to resemble real limbs, and so typically take the form of a metallic pole or hook.

When a patient completes the initial recovery process, some patients are fitted with a prosthetic more unique and personal to them, pending available funds. The NHS is responsible for roughly 55,000 - 60,000 patients, costing the organisation £60,000,000 in approximated spendings, and as a result they do not commission what they define as “high-definition silicone covers”. Such commissions are only usually obtainable through third-person manufacturers which impose a considerably higher cost to the patient. ⁽¹⁴⁾

13. Meg Marquardt, *How Do Bionics Work?* (California, Capstone Press, 2019) ,pp24

14. NHS, *Prosthetics service review*,

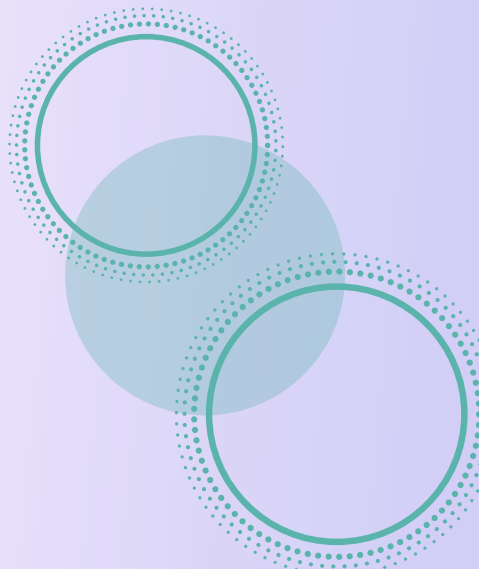


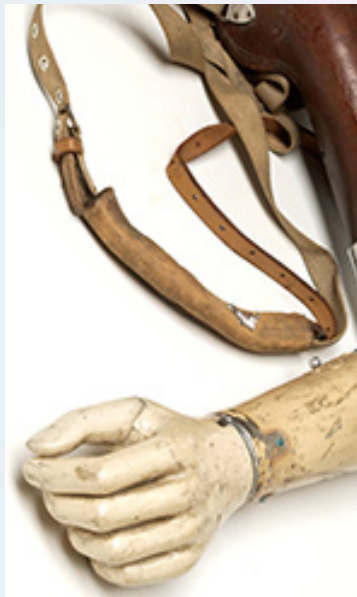
ABOUT SOPHIE

Sophie comes from an art background, with a first class honours degree in Special Effects prosthetics for film and TV. She worked as a sculptor for 8 years at one of the UK's leading prosthetic providers, making realistic, bespoke prosthetics for amputees. In her spare time she made more experimental art work in this medium before setting up her own studio and launching the Alternative Limb Project.

Sophie now works as a specialist consultant and works alongside prosthetists to produce realistic-looking artificial limbs as well as more imaginative limbs with direct input from the client to reflect their interests and personality.

15. Sophie de Oliveira Barate, "altlimbpro", Alternative Limbs , 2016





*Prosthetic
Variants*

The use and application of prosthetic limbs is a widely varied subject. The most common use of prosthetics is practicality, to restore function lost during the amputation of general absence of a limb, however some choose to use their condition to make a statement, either political or social. Some prosthetic devices are custom made with unique artwork, designs and features that reflect the personality of the wearer, whilst others are designed to be discreet and unnoticed when compared to a complete limb. Ever evolving technology has led prosthesis production to some impressive heights in recent years. The pursuit of subtle implementation of replacement limbs has made quite possible to hide the absence of a limb, particularly in terms of functionality. The introduction of biomechanics(16) has even started the development of electronic replacement limbs that detect brainwaves and accurately interpret them as instructions to working joints and functions within the artificial limb.

Humans have pursued the development of artificial prosthesis throughout history. The earliest recorded discovery of a permanent limb replacement was from the remains of an ancient Egyptian, (17)(18) who was found with a wooden toe as a result of an amputation.



16. Meg Marquardt, How Do Bionics Work? (California, Capstone Press, 2019) p.12-13
17. support the guardian , meet the woman who turn artificial limbs into work of art, Andrew Anthony, sun 29 dec 2013
18. Lacey deamer ,livescienncc, 3,000-year-old wooden toe prosthetic discover on Egyptian mummy, June 22,2017



The process of manufacturing a prosthetic device is destined to be a complex and precise process, depending on rigorous know how and skill to be done efficiently. The function of a prosthetic is to replace a lost limb and take over its responsibilities. I wanted to conduct a sufficient amount of research into both the design and functionality of a prosthetic and learn about what sort of varieties exist within the industry - I want to be sure my piece will operate properly in its purpose as a prosthetic device. I have found some valuable information from both book and online sources which may prove useful.

I've been learning about mioelectrical prosthetics, which are fascinating pieces of prosthetic technology that utilise the electrical signals sent from the brain to a limb that direct actions, transmitting them into the prosthetic and converting it into movements within the prosthetic's mechanical joints. In other words, the prosthetic listens to the brain and moves itself accordingly. Assuming the process is seamless enough, the brain will theoretically fail to differentiate between the prosthetic device and a real limb. I think this kind of technology is incredible and even though I'm very unlikely to be able to explore this practically during this project, it's definitely something that I will hope to explore with future pieces.



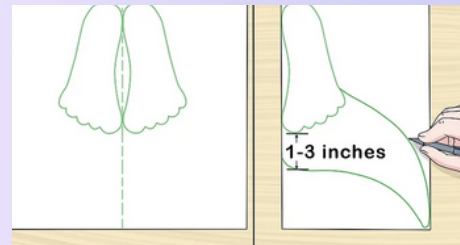
This how-to had quite a positive influence on my project because, though I had been inducted in the use of a T-shirt press, I wasn't feeling particularly confident about my capabilities when operating it independently. It was useful to have an additional guide from an outside perspective to compare my own notes with, particularly alternative techniques. Learning about different kind of materials you can press using a T-shirt press was also interesting, and may open doors as my projects move forward.(17)

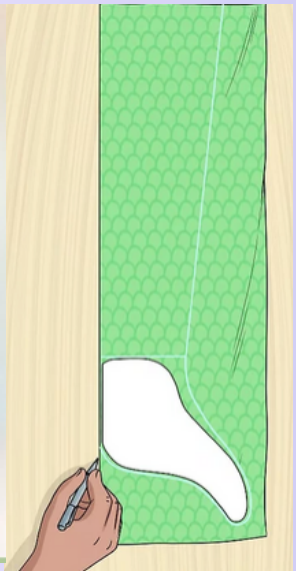
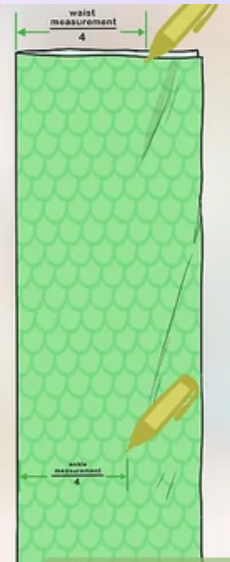
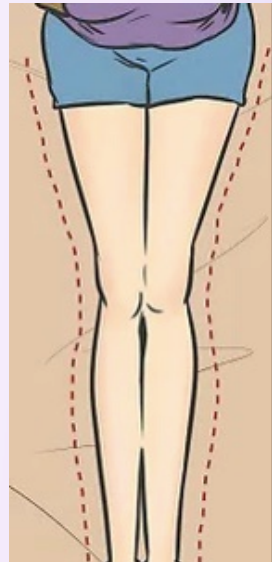
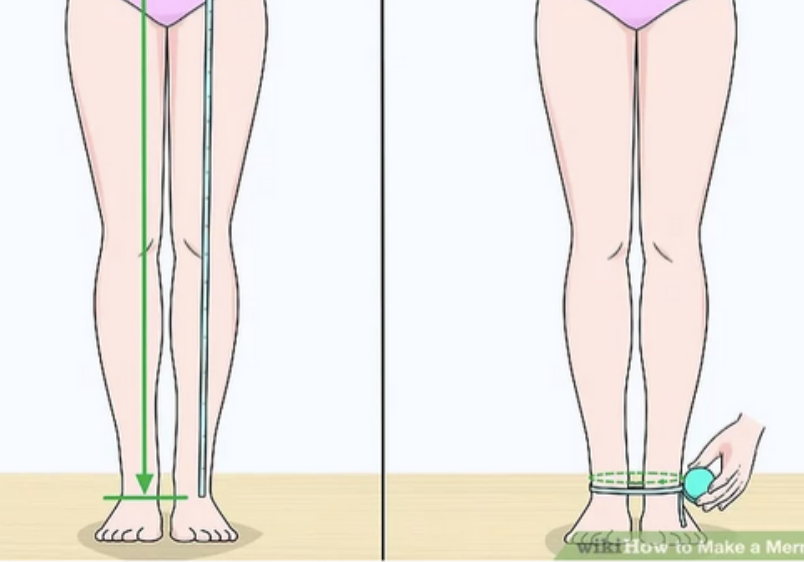


This rather accessible submission to WikiHow.com outlines one possible method of creating a practical monofin. Using pair of water slippers, an outline is traced on a sheet of poster board, then an outline of a fin is drawn on the board before it is folded in half roughly according to the outline. The resulting outline then needs to be cut out whilst its still folded. The insights provided by this step-by-step were quite helpful when ascertaining my own planning. Some sections herein I hadn't previously thought of, for example I hadn't thought to use water slippers for the monofin. Originally my plan was to use straps to secure the wearers feet to the fin, but using slippers sounds like a much more practical way about it. The website then goes on to to create the body of the tail, which was also quite handy in finding a means of creating a template to help detail the body's profile. This was a technique I ultimately used for my own project.

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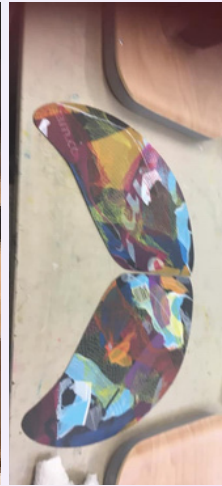
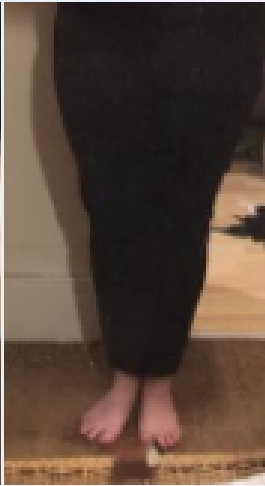
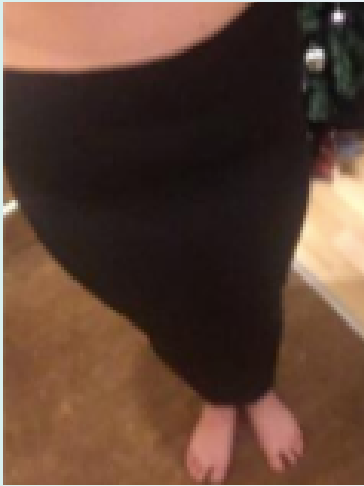
19. wikihow, how to make mermaid tail ,November 10, 2019





Experimenting with Materials







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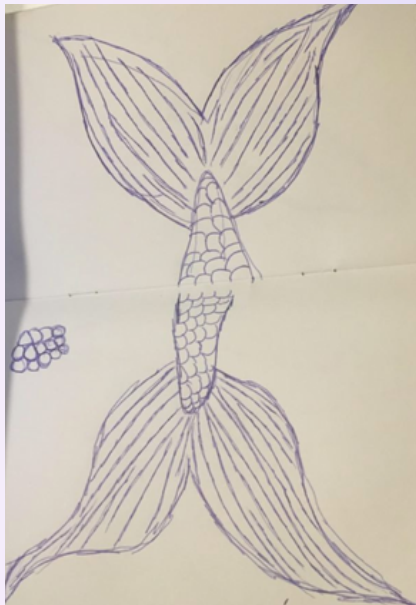
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21. youtube, how to make a silicone mermaid tail-part 3,syrenka zany wispy mermaid pogo , 10 jul 2016

Designing a Fantasy



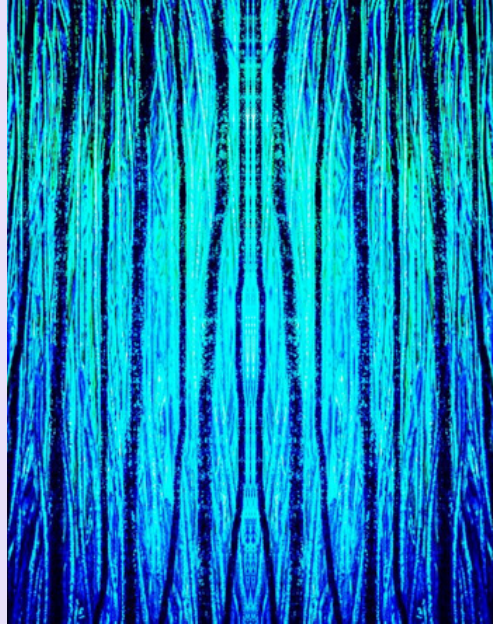
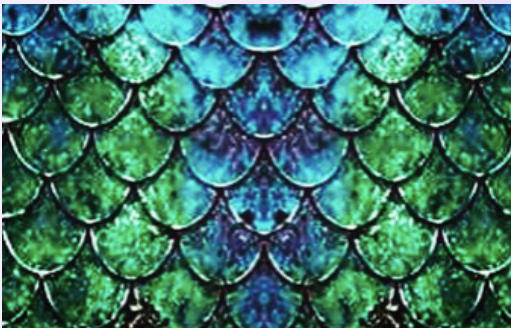
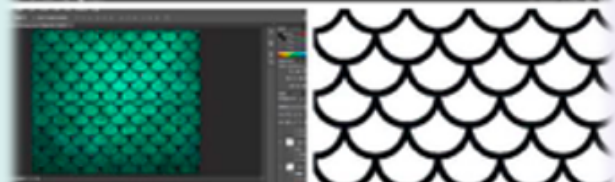
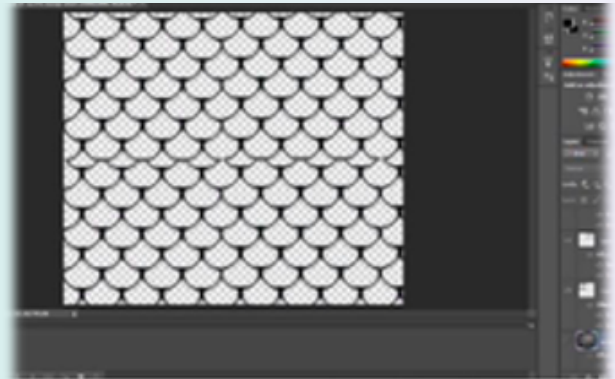
Body Cast Sculptures with CelluClay and Activ Wire Mesh

Mesh

Miami artist, Sierra Rasberry, uses CelluClay and Activ Wire Mesh to create stunning works of art that include impressive body cast sculptures like this mermaid sculpture that was made from the body cast of a live model. Her work is amazing and you can view her entire portfolio of body cast sculptures and more on her website. You can also follow her on Instagram for exciting in-process photos and more. Note that the images are artistic, but viewer discretion is advised due to the nature of the art form. (22)

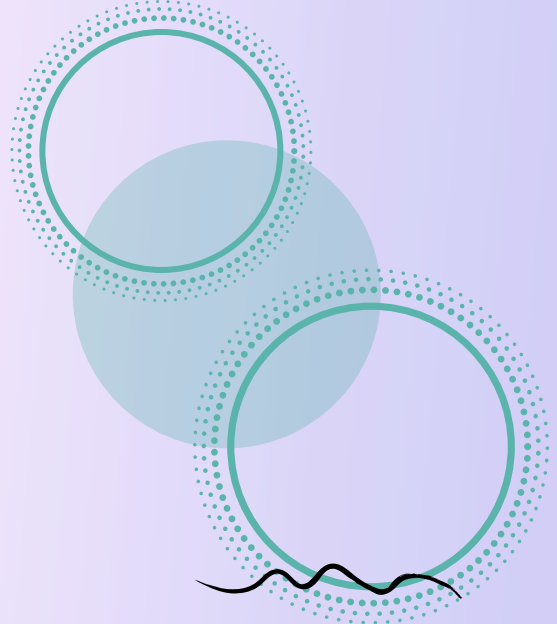


Some of my experimental design



A lot of the design work in my project involved extensive use of image manipulation software, specifically Photoshop and other Adobe suites. Prior to the start of this project, I myself wasn't particularly well practiced in using Photoshop; I'd used it before in previous projects, but never to the extent required by this one.

Fortunately, I was able to enlist the help of a friend who's much more proficient with it, and I managed to pick up some very useful techniques. One of the most important processes was creating the textures for print, which I created by first producing a basic outline to serve as the base of the design. I borrowed a generic sample of fish scales from the internet and isolated the basic shape to create an outline. Having established a basic template, I could change the shape and size of each scale to best suit what the design was going to be printed on.

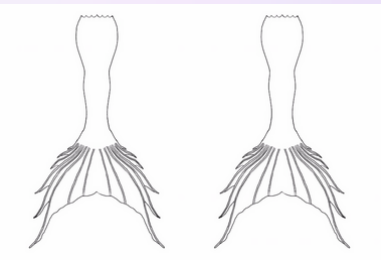
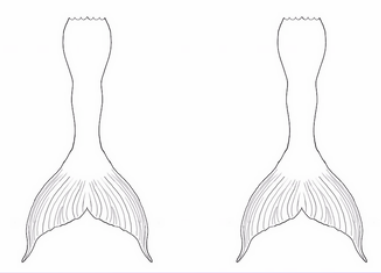


From there, it was a matter of filling in the blank space on each scale to closer represent the real thing. I also used a combination of displacement, blending, strokes, drop shadows and an emboss filter to better simulate a three-dimensional image. I used a high-quality image of real fish scales as a displacement map. The use of displacement was a completely new function to me that I'd never previously encountered, so I needed to use some online guides to help walk me through it. This blog provided a very comprehensive step-by-step which I used as a valuable reference when trying to work it out.

As mentioned previously, the themes of my pieces present an abundance of opportunities when it comes to creating a brand image; mermaids and other mythological creatures are highly idolised and heavily exploited in pop culture, making a mermaid theme instantly recognisable and would allow my company to be easily connected to iconic cultural phenomena like children's films or historical events and individuals. Disney films and productions in particular may a significant aid to my brand image since having even a vague connection to such a popular and beloved franchise may allow me to piggyback off the brand's enormous following.



For some of my later images, I needed to create some preliminary designs and projections of what the results of my project were going to look like. One such design was a fully detailed image of a whole tail and its accompanying accessories. To do this, I found a blank outline of a mermaid tail from a website with some limited customisation facilities that allows customers to design their own tails. This facility provided me with a handy template I could use as a traceable reference point in Photoshop.



finFun CUSTOM
Tail
CREATOR

DESIGNED BY

Classic Scale

MED

DO NOT
COLOR ON
QR CODE

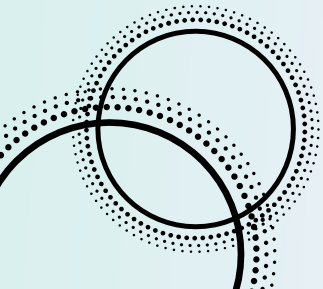


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Using this template, I fitted my own designs into the shape and removed any excess by inverting the selected area, refining it so as to including a fraction of the underlying outline and cutting the outside space. Having played around with the transform settings to give it a bit more of a rounded perspective, I added a stroke and emboss to the top layer before removing the background to leave a perfectly shaped mermaid tail with my own design as a fitted texture. I needed to layer the body and the fin separately as they used different placed images, and some precise blending and feathering was required to make sure they didn't collide with each other at the intersection.



My Photoshop Tails



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