Subnautica 2D

Intro

Subnautica is an open world survival game released in early access in 2014, and fully in 2016. Since 2021 it is playable on all major platforms. The game is set in the ocean of the planet distant 4546B, and you play as Ryley, the only surviving crew member of the Aurora spaceship, which mysteriously crash landed.

The gameplay revolves around exploring and surviving the oceans and occasional islands of the planet, which involves collecting resources to craft items, vehicles, and bases, all the while watching out for alien sea creatures, which get progressively more dangerous as you go deeper and further from your life-pod.

While playing the game, you also begin to uncover the secrets of the planet, involving an ancient and highly advanced race of aliens.

The main pillar of design for Subnautica ended up being the exploration aspect, focussing on the thrill of the unknown. As it's a first-person game, you're looking through the eyes of Ryley and putting yourself in his shoes, so it's easy to become immersed in world and its mechanics. This will be difficult to achieve in 2D – as the player is somewhat removed from the player character – but it's a very important aspect of the game, so I'll need to find a way of instilling that feeling in the player in my adaptation.

How could it work?

My idea is that the best way of adapting Subnautica into 2D is to make it into a "2.5D" sidescroller. I was initially hesitant to do this, as my previous adaptation was also a sidescroller, but after listening to a talk from the animator Barry Purves in which he talked about how it's important to be intentional with design, I decided to go with it as opposed to making an arbitrary change. The reason I think a sidescoller is the best format for this adaptation, as opposed to something like top down, is simple: vertical movement. For the majority of the game, you're exploring a vast ocean of which you need to be able to dive down into – with no vertical movement, there's no diving.

Screenshot from Terraria

This choice was partially inspired by Terraria, another open-world 2D sidescroller, which also uses vertical space to expand the world. However, Terraria uses 2D sprites – something I've chosen

against doing for Subnautica 2D. I want to use 3D graphics and assets to bring the visuals closer to a real ocean as opposed to a flat representation, in an effort to add relatability and increase immersion.

The Gameplay

The game's director Charlie Cleveland mentions in his 2019 Game Developers Conference talk that the main design pillar ended up being exploration and discovery – the thrill of the unknown. Here's an excerpt from one of his presentation slides:

"Excitement, dread and tension of exploring the unknown. No ideas what dangers/rewards are down there, increased risk generally associated with increased reward."

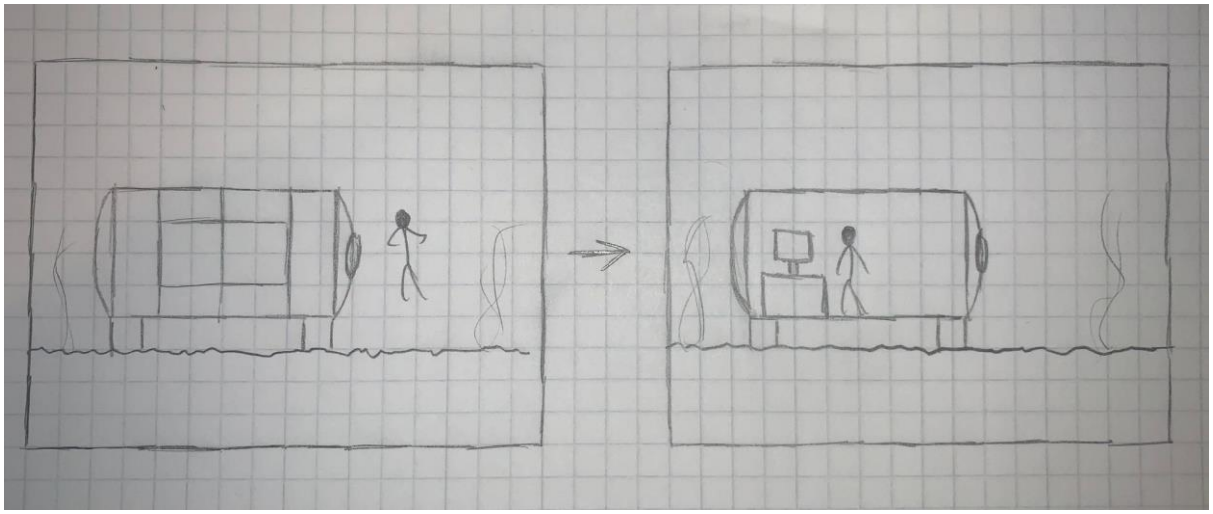
This exploration is encouraged by the main gameplay loop. You start at your lifepod with barely any resources, and a few crafting blueprints. Your thirst and hunger meters start ticking down immediately, prompting you to explore the shallows for food and water, and along the way you discover some resources that can be used for crafting. How deep you can go is limited by water pressure, and how long you can stay underwater is limited by your O2 level, at least until you craft a vehicle and a bigger O2 tank. Most resources for the items you can craft early on are found around the shallows, and once you do upgrade your O2 tank you can start to head out further and discover more new materials that let you craft better upgrades. You then use these upgrades to go even deeper and discover more new materials, and so on. The deeper you go, the more you'll discover, and the more dangerous the creatures will get, generally speaking.

The story of the game doesn't really start until you engage with this loop either – one of the earliest items you can craft is a repair tool, and the only thing that needs fixing is your lifepod's broken radio. Once you fix the radio, you'll start to receive messages from various sources, prompting you to explore specific areas in which you'll find more materials, more blueprints, and more story details.

The loop functions similarly to metroidvania games, in which you have to explore to find upgrades which then let you explore further. The main difference is that in Subnautica you always have to return to a location – either your lifepod, or a base you have built – to apply these upgrades. Returning to your base or lifepod is necessary regardless though, as you'll always need to restock on food, water, and batteries for equipment – or even just because your inventory fills up and you need to put some of it in storage. I mention metroidvanias because this genre, as well as other games such as Terraria which I mentioned earlier, are 2D games with a large open – or at least interconnected – world you need to explore through to progress. This makes me confident the gameplay will work in 2D.

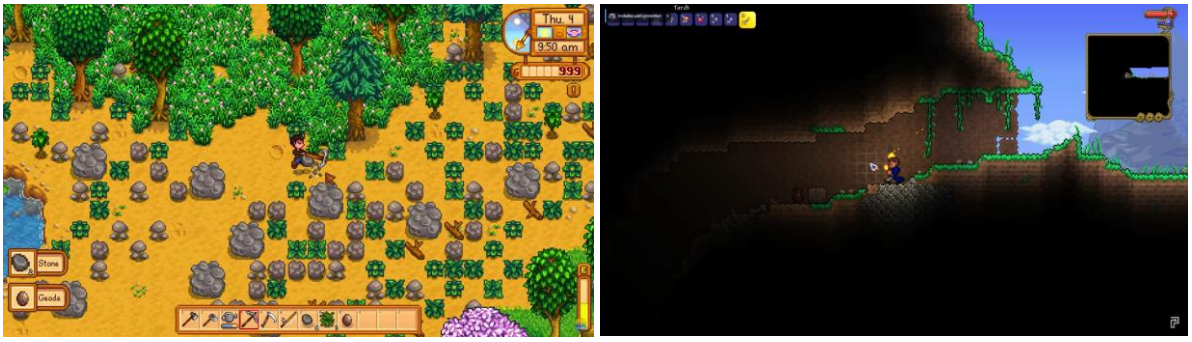
The exploration also encourages you to interact with the previously mentioned base building mechanic. Subnautica lets you use the resources you obtain to craft a customisable underwater base, full of equipment, expanded storage, vehicle bays, generators, farming stations, and so on. We can keep this feature in 2D, but it will need adjusting. In a first person game, your view of the world is attached to the player character, so wherever they go, you're going too, seeing the exact same thing as them. In Subnautica 2D, since it's a sidescroller, we're not looking through Ryley's eyes, we're looking at Ryley from a distance. This means, if he goes into a base, our view of him will be obscured if it's not big enough for the floating camera to fit inside, which in this case, it's not. I think the easiest way to get around this is to make it so the base assets are cut in half. However, having an underwater base with its internals exposed to the water won't look right, as it's not how it works in real life. While it's true that due to their perspective 2D games are inherently removed from reality meaning we can get away with more 'gamey' features, I think in this case, maintaining a slightly

stronger similarity to real life helps the player get immersed in the atmosphere which is such an important part of the original. For this reason, in Subnautica 2D, when you're outside of a base (or the Cyclops submarine which is essentially a mobile base) it will be a full asset, but when you enter, the camera-facing half of the asset will fade away so you can see Ryley inside. Here's a quick diagram:



This should ease the player into a more obviously unrealistic visual, so it'll stick out less.

Another important aspect that needs changing is movement and controls. As it's a sidescroller, d-pad, analog stick, or WASD can control the movement as they encompass every direction you'll be able to move. An on-screen cursor would also be useful, which could accomplish the same tasks as a proximity based context sensitive 'interact' button which is a little more console friendly. This is a similar control scheme to games like Stardew Valley, and, once again, Terraria. These games are a breeze to control so I think it would work well for Subnautica 2D.



Stardew Valley (left) and Terraria (right) are both 2D games which make great use of stick/WASD controls as well as a mouse cursor

As I've mentioned already, the first-person perspective is absolutely crucial to the feel of Subnautica. This perspective is very immersive as it puts you into Ryley's shoes, and really makes you feel like you're staring into the abyss, fearful of what might be staring back. This adds a lot of atmosphere and tension, and goes along way towards helping the game give the thrill of the unknown to players. This is simply not quite the same when you're not in first person. In Subnautica 2D (and even if I was putting it into another 3D format like third-person or over the shoulder) the player is looking at a character in the water, as opposed to looking into the water themselves – the player is slightly removed from the experience. This is taken to the extreme in 2D, as we can't even control the camera – or can we?

Not really – at least, we can't really move the camera freely to look around the environment. What we can do however, is zoom the camera in and out. Having multiple choices for how close the camera is to Ryley feels like the best option to me. If the player keeps the camera zoomed in, the whole screen will be brighter, which may be less scary, but they won't be able to see quite as far. It might also get quite claustrophobic, like being on a submarine. The further out the player zooms the camera, the wider their field of vision becomes, but the outer edges will get a whole lot darker. Ryley will also become much smaller compared to the environment around him, adding to the feelings of isolation and reminding the player how small they are compared to the vast ocean. If the camera is zoomed out also massively opens up your view of the background, and who knows what you might be able to see in the distance? This brings it closer to the original, as if the Ryley isn't taking up much of the screen, it feels a lot more like you're the one looking into the water.

Though the gameplay is limited to a 2D axis, I want the world to have real 3D depth – but this makes more sense to be talked about in the visuals section, so let's do that.

The Visuals

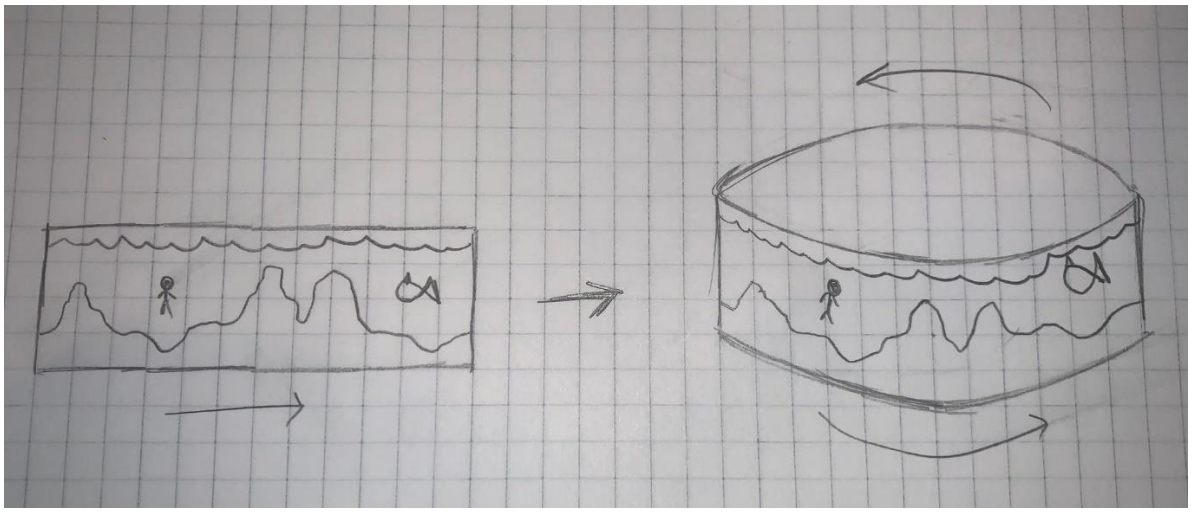
Earlier I discussed how Subnautica 2D will be made from 3D assets instead of 2D sprites, to add some more depth to the world than what would be afforded by a flat representation. Luckily, that means we can keep the art style and direction the same as in the original, which is great for us. In an interview for Rock Paper Shotgun, Subnautica's art director Cory Strader mentions how Subnautica's art style is "*stylized to some degree, emphasising simple and slightly exaggerated silhouettes, without going too cartoony*" which is a great decision as the game is meant to look alien and different to our own, so exaggerated visuals don't go against how we know the world to look.

Brief tangent aside, I also mentioned earlier how I want the game to have a "2.5D" style, and this goes further than simply using 3D graphics but limiting the player to a 2D plane. When I say 2.5D, I mean it in the same sense as in Klonoa: Door to Phantomile, and Kirby 64.

Screenshot from Klonoa: Door to Phantomile

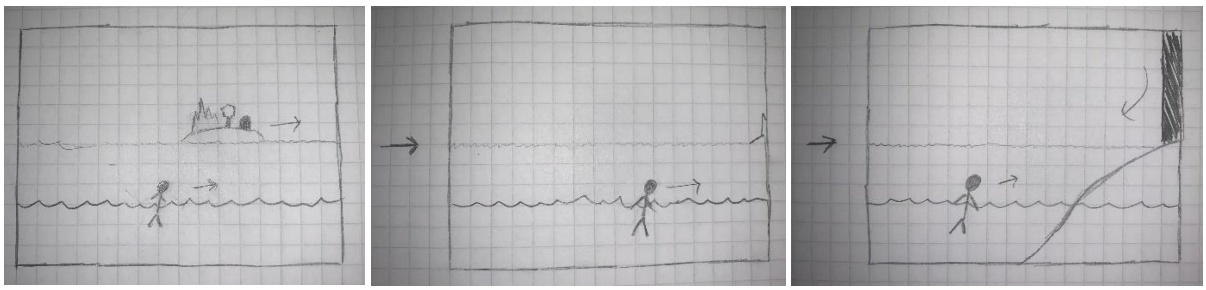
As you can see in the screenshot above, the levels in these 2.5D games are actually 3D, and go in multiple axes. The player character is still locked to 2 axes, but this axis rotates as they progress through the world. It might help to think of it this way: the gameplay is 2D, the environment is 3D.

Initially I would've said that Klonoa was a 2D game that simply makes fair use of a 3rd axis, the idea of making one of my adaptations with such liberal use of said 3rd axis like this doesn't feel like staying true to the project, at least for me personally. That's why in Subnautica 2D, instead of making the 2D axis rotate in numerous directions, I just want it to be wrapped around a cylinder. Here's a diagram of what I mean:



While I do think a game can still be 2D and make fair use of the 3rd axis, I think a key part of it is limiting the use, and I think having the world wrapped around a cylinder is a more limited use than something like Klonoa, especially as it would be subtle due to the size of the world.

This cylindrical world has numerous advantages when it comes to my adaptation. Subnautica makes great use of landmarks in the distance which catch your attention such as the crashed Aurora ship, and multiple islands. In a flat 2D plane, usually, you can see into the background, but can never access the background – what you can't see is what's coming up in the distance gameplay wise, as it's to your left or right. Having the world laid out in a circle means even you'll be able to see landmarks on the opposite side of the world, which will disappear from view as you get closer, rotating around the cylinder, and then reappear when you actually come across them. Here's what this could look like:



Even though it's technically all laid out in a horizontal line, this method lets me catch the eye of the player and give them something to work towards.

In the GDC talk, Charlie Cleveland mentions how they needed to do something about the edge of the world, as it couldn't just be infinite. Subnautica is set in the crater of a volcano, so at the edge of the

world, there is a steep drop. Charlie talks about how they lowered the height of the ground to make it seem infinite – the darkness also helps with this effect. To stop players from going out to far, Ghost Leviathans will spawn in to pursue the player back to the main playable space – or just kill them. This isn't an issue at all with Subnautica 2D – since the world is circular, wrapping around a cylinder, there is no edge to the world, it just loops round. This should be useful, as reaching the edge of a map can sometimes take the player out of the experience especially when games use something like an invisible wall.

Though not specifically related to visuals, I'll mention it here anyway – the creatures will be able to move around in three axes while the player only has two. I like the idea of creatures swimming by in front of the camera, and leviathans lurking in the background before speeding towards you as they attack. This also works thematically – 4546B is these creatures' home. They're aliens to Ryley and the player, and having a wider range of movement makes them even more, well, alien. Ryley and the player are unfamiliar with the world and its inhabitants, and this emphasizes that.

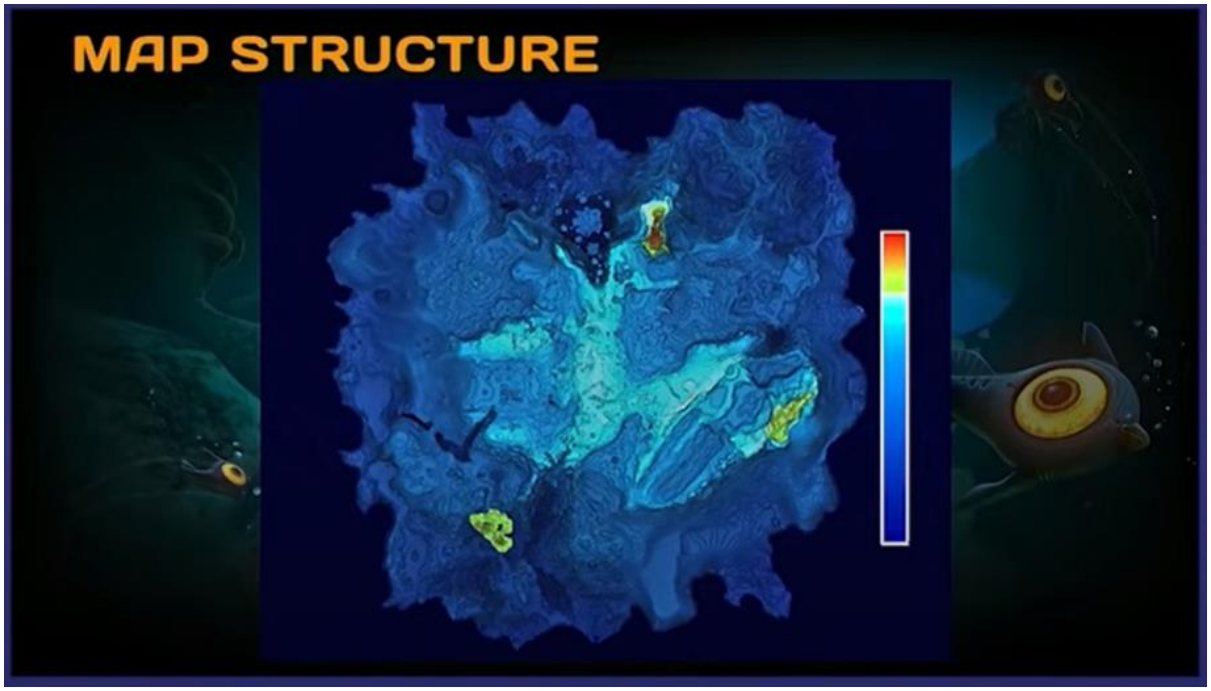
In terms of UI and HUD, I think the elements from the original don't need changing (apart from the addition of a cursor visible during gameplay not just menus). The depth and oxygen meters are great for increasing tension and excitement, and the item bar at the bottom of the screen is reminiscent of both 3D games such as Minecraft and 2D games such as Stardew Valley. The addition of a cursor works well in 2D games as it isn't just for showing the centre of the screen and where you're aiming, and in 2D we can't rotate the camera to the direction of items and interactables to use them. A cursor gives a little more control over these things. What we can change is the map markers which point you towards certain locations – since we can't rotate the camera, having them hover around the edges of the screen and move depending on your position makes the most sense.

The Level/World Design

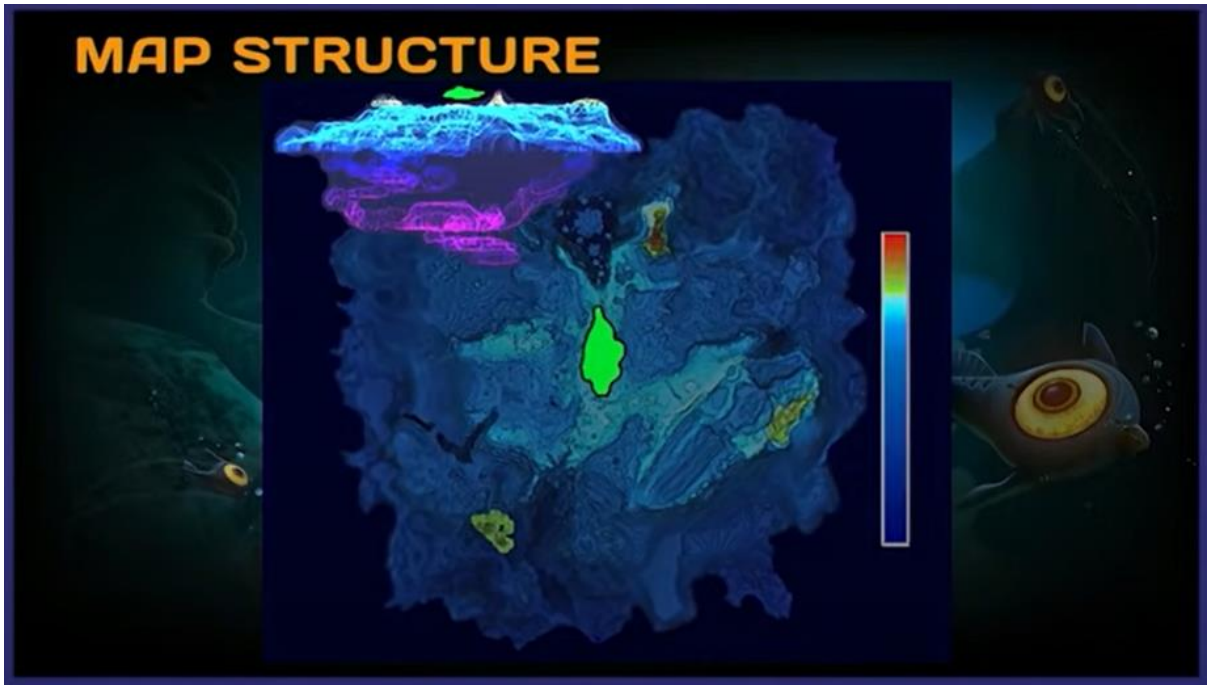
It makes more sense to talk about Subnautica in terms of world design as opposed to level design. You could definitely think of the different biomes and areas within biomes as being levels, but the overall design of the world is more applicable for Subnautica 2D as the world informs the different areas.

The GDC talk from Charlie Cleveland (the game director) as well as videos from the Unknown Worlds (the developers) YouTube channel were very helpful as they all provide insight into the world design of Subnautica. Charlie mentions how the starting location is like the highest point of a pyramid, and every direction takes you downwards, deeper and deeper. Here are a couple of screenshots from Charlie's GDC talk showing the map of the game, and then the same map with a 3D side view of the world:

(Cont. on next page)



Top-down view of Subnautica's map



Top-down view of the map – the green in the middle is the starting location, and the 3D side view of the world is on the top left of the map

Charlie states how they designed the world in this way as they didn't want to tell the players where to go. They wanted to focus on intrinsic rewards (discovery) as opposed to extrinsic rewards (achievements), and this pyramid approach led to players naturally following the line downwards, discovering more things the deeper they went. To add to this, the decision to make the world infinite with no solid boundaries was also made to keep the world mysterious.

This pyramid idea only really works in 3D, but thankfully working in 2D cuts out a lot of directions the player can move in anyway, so we don't necessarily need to just funnel the player downwards.

However, this also means we can't just make the centre of the world the highest point, as since our plane of movement is a circle, the centre of the circle is somewhere the player will never go. It makes more sense for a top-down view of our map to look like a pizza, with each slice of pizza being a different biome, with a different maximum depth. The actual gameplay will all take place around the of the pizza, in the cylindrical fashion I mentioned previously.

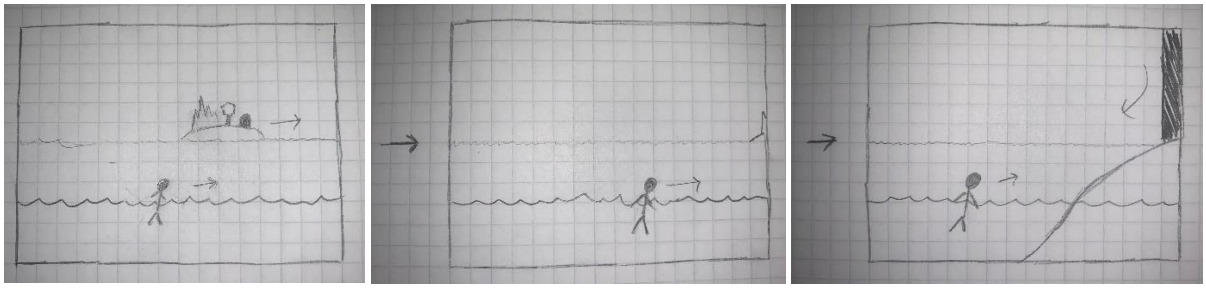
We can make the gameplay and exploration less linear by having deeper biomes next to shallower ones whenever we can. This would mean that even when exploring to the limits of how deep you can go at any given point in the game, you'll always have to pass over areas which are too deep. This will hopefully add to the thrill of the unknown – as there's no way of knowing what might be beneath you yet – as well as remind the player of areas that they haven't fully explored yet. We can also utilise underground caves and tunnels to expand certain deeper biomes beneath the shallower biomes, both making the world feel even less linear and making good use of the space.

In terms of actually designing and building the playable areas, we can turn to those YouTube videos from the developers that I mentioned earlier. Both Andrew Jones and Michael Schouten (world designers for the game) talk about how initially, they experimented with procedural generation to create the large open world. The issue they had with this approach was that it was too clear it was procedurally generated as opposed to looking natural and didn't quite live up to the concept art they had been given. This prompted them to switch to sculpting the entire world by hand. This switch in approach paid off - the world doesn't feel designed, it feels completely natural.

Michael also mentions that they wanted the player to feel lost as if the world was real, and further stresses that they didn't want to handhold, instead wanting the player to discover the world themselves. This, as well as the naturalistic design, ended up working to the extent where you almost forget you're playing a game, as the world feel like a real place as opposed to a series of levels. We can apply this philosophy to Subnautica 2D, and focus on sculpting a playable area which feels more natural as opposed to man-made or 'gamey' in the way a 2D Mario game might feel. Since we're locked to a 2D plane, the playable axis may feel a little more man-made than a fully explorable 3D environment, but since 2D is inherently less close to reality than 3D, this isn't necessarily a problem as players already expect the game to be a little less realistic than our real world. Even so, the fact that our environment is 3D lets us sculp the environment far back into the distance, even though the player can't go out there – this should make the world feel more alive.

Another thing that Michael refers to when talking about the world is allocating resources and loot. Andrew also mentions this, saying how in a lot of games, environmental pieces such as plants are just for 'verisimilitude' but in Subnautica, most of the plants and objects are interactable. This also informed the design and look of environments, as new loot was needed for deeper areas which then necessitates new interactable assets, making the environments look unique. This would most likely work in the same way with Subnautica 2D.

One last element of the world I want to go over is the above ground sections – the islands, and the crashed Aurora. I already talked about how since we're working with a circular plane of gameplay, objects in the distance can act as landmarks even though usually that only works for 3D games. This applies to the islands and the Aurora, as you would be able to see them in the distance before they go out of view, and you actually come across them to explore. Here's a reminder of how that would look using images from earlier:



I do realise that though walking on a rotating axis works in a more open area such as the seafloor, it doesn't really work when in a man-made object like a spaceship, as these enclosed areas wouldn't be curved. For this reason, it would make sense to transition to fully straight plane when on the Aurora (as well as in the bases) as opposed to curving the assets that make up the ship, or to have the straight assets rotate with the player as to not offset their position in relation to the wider world. Regardless, when designing the playable areas of the Aurora and the islands, I think it would make sense to look to metroidvanias for inspiration, as these games have great examples of 2D spaces which make good use of the horizontal space while also incorporating interesting vertical elements. I'll also take this approach for – spoiler alert – the secret alien structures.

The Sound

Sound is a very important part of Subnautica. The soundtrack uses a lot of synthesizers and some of it almost sounds like atmospheric dance music. The music pieces are spacey and futuristic in a way that meshes very well with the futuristic technology and the strangeness of planet 4546B. However, it's the sound effects that play when you're underwater that really take the game to the next level. The ambient ocean sounds, the chirping and singing of the alien creatures, the ominous rumbles of mysteries that may be far away or may just be hidden in the darkness – every part of the underwater soundscape is immersive and atmospheric, making the world feel incredibly alive. They make the game foreboding but can also be relaxing, to the point where there are multiple several hour long YouTube videos purely dedicated to the ambience of planet 4546B's ocean.

Many 2D games take a more bombastic approach to sound – think of the expressive sound effects and catchy, prominent melodies of classic and modern Super Mario Bros. and Sonic the Hedgehog for instance, which go hand in hand with the playful vibes of the game. Additionally, these games aren't focussed on realism (which is part of the reason they work so well in 2D) so don't necessarily need to use music and sound to pull you into the experience – it's more to emphasize the fun. However, there are also those which stray from this approach at points to inject some mystery and even creepiness – Super Metroid is a good example. Subnautica strikes a balance between prominent synthesized music which flows between sounding more involved at points and more ambient at others, and moments of quiet where you can only hear the ocean sounds, and I think this is important part of achieving the feeling of the thrill of the unknown. When you discover a new area, you may be greeted with a song which establishes a certain feeling in your mind, but after a while you're left with the sounds of whatever might be down in the ocean alongside you.

This balance is what prompted me to keep the sounds the same for Subnautica 2D. It feels very important to what gives the game its unique atmosphere, and isn't the just the ambient, acoustic instruments used in certain ambient tracks in games such as Breath of the Wild and Skyrim. While that does work very well for those games – the music in certain sections almost blends in with the sounds of nature, adding to the atmosphere without distracting from the immersive game world that 3D games excel at creating – Subnautica's approach fits well with the conventions of both 3D and 2D. Also, I don't mean to generalize – both Breath of the Wild and Skyrim have memorable

soundtracks with more ambient songs and more involved pieces, I just wanted to comment on the former.

One way the sound effects will have a slightly different effect is with regards to what direction they come from, and how that affects what the player does. As Subnautica is first person, the sounds you hear line up exactly to where Ryley (and by extension the player) is in the world – if you hear a close sound to your right, look to your right and you'll probably see what made it. Since in Subnautica 2D, the player isn't experiencing the world through Ryley's eyes and ears, the sounds will line up with where the camera is located as opposed to which direction Ryley may be facing.

If we wanted the sound the players hear to be more in line with what Ryley is hearing, we could make it so the sounds are only being played from points nearest to the horizontal plane on which Ryley can move. However, this is slightly at odds with the zooming feature, as it would mean that sound effects were much louder the more zoomed in we were, and quieter and possibly even silent if we're zoomed out far enough. This would probably make more sense if the game was 3D and third person, as then there's a higher level of realism. However, I don't think it's the best approach for a 2D game. While some players might understand why the sound changes in this way, I don't think it would be obvious right away to everyone which might take some of them out of the experience. To add to this, there's the music, which shouldn't get quieter since its non-diegetic – but it may sound strange if the music is all the player can hear.

I think having ambient sound effects (such as that of the ocean and creatures) play in relation to where the camera is, and crucial sound effects such as the PDA play at a consistent volume no matter where the camera is located is the best option. This mixture between realistic and less realistic should land better in 2D (since it has inherent distance from reality) while maintaining a level of immersion. Additionally, we've already established that the world expands beyond the horizontal plane – hearing creatures from one plane only wouldn't make sense anyway. I didn't expect to have to think so much about this issue, but I think it ended up being a good example of how this whole adaptation process can prompt a dive into aspects of game design that I might never have had to consider if I was making a game from scratch.

The Proof of Concept

Creating a demo for this project ended up being challenging, mainly due to my cylindrical world idea. More on that later.

Here's a YouTube link to a playthrough: https://youtu.be/uswclk7Rz88

And here are some screenshots. I won't describe every image since there's not a particular puzzle to solve, it's more about exploring the area and finding materials. Take a look:

(Cont. on next page)


1
Craft O2 Tank? 0/3 Titanium
O2
45


-35
O2
38


0
O2
45


2
O2
45


1
O2
75


-33
O2
64


-38
O2
51


-38
O2
50


-38
O2
75


-78
O2
69


-45
O2
56


-41
O2
42

Now I'll go into some more detail!

The Gameplay

I stuck with every decision I made regarding gameplay as everything ended up working out how I wanted it to. The specific gameplay features I added to the demo – aside from the obvious swimming – were a working O2 meter, a working depth meter, crafting (you can collect titanium to build a better oxygen tank), base building (you can collect titanium to build a small base), and the ability to zoom the camera in and out. A slight feature regarding the O2 meter is that above 50 metres oxygen ticks down one unit per second, and below 50 metres it ticks down at three units per second – this is to encourage the player to craft the better oxygen tank, as well as the base since your oxygen is restored when you enter.

The scenario in this demo contains a condensed version of the gameplay loop from the original: you explore to find resources (titanium) which then lets you craft items (oxygen tank and base) which then lets you explore even further and collect even more resources. A full version would include more story elements, but the exploration was more important for the demo.

I was also glad that the zoom feature worked and had the effect I intended it to have – the more you zoom out, the more you can see, but the more isolated and smaller you feel in the open ocean. I decided against making the edges of the screen darker the more you zoomed out, as the increased vision is one of the more useful factors of the feature. As I was hoping, zooming in too far reduces these feelings, but is also claustrophobic like being on a submarine – in a full version, you actually would be.

The Visuals

Using full 3D assets for the visuals was definitely the way to go as the feeling of depth they provide is vital to that feeling of looking into the distance and wondering how far it goes and what might be out there – the thrill of the unknown. It's useful having the choice of 3D and 2D environments when creating 2D games. Having the creatures not locked to a flat plane also helps flesh out the world and make it seem bigger and more alive.

You probably noticed that the landscape in the demo is in a straight line, meaning that the world is not in fact built in a cylindrical fashion. I didn't want to get behind on my schedule, and building the level was important, so for this proof of concept, I decided to abandon that idea. Additionally, I'm not including a fisheye effect on the camera either, as the post process material that allows the effect to function interfered with the effect of the water, and I deemed the underwater effect the more important of the two.

It's unfortunate that I had to leave behind those ideas, at least for the demo, but doing so allowed me to move on and focus on creating the world and implementing the gameplay. I still implemented the Aurora in the distance (I actually used a screenshot from the game and cut out the ship, so it's actually a 2D image) despite not having the objects in the distance coming back around as you traverse the level. In a full version, more time could be spent making the cylindrical world work, as I still think having actual landmarks you can see and then reach, as well as the looping world with no edge would be unique and interesting features, especially for a 2D game.

I created the assets for the lifepod, bases, oxygen tank, fabricator, and titanium.

The peeper model is based on the creature from the original game, and was sourced from JelloJordan on Sketchfab:

https://sketchfab.com/3d-models/peeper-82dd1710a57b4e6182c8fedfebcd3ce6

The reaper leviathan model is also based on the creature from the original game, and was sourced from patrat623 on Sketchfab:

https://sketchfab.com/3d-models/reaper-leviathan-dfbe936f6fcb40f79bef4d0de6d83a27

The Level/World Design

Putting the slight disappointment of not including a cylindrical world aside, creating a naturalistic playable space ended up working well. Being in the open ocean makes you want to push further to discover more of your environment, and once you find the seafloor it's hard to not want to follow the natural contours of the world, especially when it leads you deeper. I sculpted the general world space complete with trenches and hills, before focusing on the specific plane Ryley can actually

move along, and being able to see similar contours in the distance makes the path feel more natural even though it's more specifically crafted.

The collectible titanium also entices you to swim further. The resource allocation has the same effect in the original – you want to collect resources, and seeing additional and brand new ones makes you want to go for them. This technique of using collectibles to encourage the player to try certain things like paths, jumps, and manoeuvres is used a lot in all kinds of games – think about coins in Mario and gems in Spyro.

I didn't fully flesh out the island, Aurora, or any alien structures in this demo as the underwater section was much more important, but in a full version I would stick to my plan of taking inspiration from metroidvania games for those areas.

The Sound

Sticking with sounds from the original was the way to go as I had hoped, and really brings the demo together, fleshing out the world a lot as it's a constant reminder of what is and what else may be down there with you. Like with Resident Evil 2D, I used music and ambience from the actual games. The waves and splash sound effects are from the Unreal Marketplace.

Conclusion

I'm happy with the result of this adaptation. As was inevitable, Subnautica had its own unique set of challenges compared to Resident Evil – notably dealing with my idea for the layout of the world, as well as dealing with the fact that the original Subnautica has a freely-controllable first-person perspective. This has a knock-on effect on the world and level design, as well as how certain mechanics work, as the player can't aim and interact with objects in the same way. However, the 2D perspective meant I had more control over what the players can and can't see, and it was useful not having to design a world in which the player can look at from every angle as this would have been time consuming; instead, I could focus on implementing gameplay and mechanics etc.

As I mentioned earlier, Barry Purves' talk inspired me to go with making the game a sidescroller even though RE2D was also a sidescroller, as the change would have been arbitrary, and I had good reasons to go with what that format – specifically, the ability to dive down. I still think this was the right decision as being able to move vertically is so important to the gameplay and real vertical movement conveys real depth. I feel as though I've captured the essence of the original game, while also preserving the original's goal of everything contributing to exploration, discovery, and the thrill of the unknown, despite the differences in immersion between a first-person experience and a 2D sidescrolling experience.

This project also solidified that creating a playable demo is extremely useful. I started the demo earlier than I did with RE2D meaning which helped me see which ideas made sense. However, I decided to leave talking about changes I made from my plans to the Proof of Concept section, because it's a useful way of showing how my plans changed from the initial idea. I think this is more useful and interesting than changing this document on the fly to match whatever I go with in the end, especially if things don't work out as intended which is what happened here.

Finally, my future projects. Though choosing to keep the game a sidescroller ended up being the right choice, I think it's important that I do explore other 2D formats to explore the medium more thoroughly. In particular, I want to try adapting a game into the top-down format. Even with these two finished projects both being similar formats, it's been incredibly interesting to see how having the limits of 2D along with using a fully realised game as a base to analyse and adapt can prompt

deep dives into every aspect of game design. As I'm writing this conclusion, I've actually already started on my next project… we're going to be taking a trip to Skyrim.