

Sleepless Underwater Effects - Version 1.1

NOTE: Demo scene worked with bloom and HDR. For corrected bloom with "Forward" mode disable multisampling, or use "Deferred" mode. "Edit->Project Settings->Quality->Multisampling"

Scripts will work perfectly on Mobile / PC / Consoles and while this scene was created with Unity 5.5.0f3, it will work on all versions of Unity5 by setting it up in the same way.

Standard Assets to Import

For compatibility with as many Unity versions as possible, those both previous, current and in future, we have removed the Standard Assets from the Demo Scene, and you will need to Re-Import them in order to run the scene correctly.

1. Import Standard Asset Package - Characters - Can be any type, but we used a 1st Person prefab for our Demo Scene.
2. Import Standard Asset Package - Environment - To replace the Water. We used a scaled up Water4 Prefab
3. Import Standard Asset Package - Effects - For the BlobLightProjector and some of the Image Effects we used on the Main Camera.

We have included Screenshots of all Assets and Settings, in this document, to assist you in modifying the Standard Assets or to help you apply these changes to your own assets.

Changes to Standard Asset Defaults

1. In the demo scene, I have decoupled the Main Camera from the FPSController and put it in under a CameraAttachment GameObject. This allows you to move the CameraAttachment up slightly for a more realistic head placement. I left the Y as defaults, but just letting you know why I made this change.
2. Added a Crouch input key to the Input Settings. Crouchheight script is used to simulate what our bodies naturally do when we enter the water. The "c" key is used to crouch in first person, but it is also used to sink when under water.
3. FirstPersonController. Crouchheight requires that the FirstPersonController script have a boolean variable called `m_IsSwimming` and a method which returns this boolean called `CanSwim()` declared. I have included screenshots below of all changes to the current version of the FirstPersonController Class to assist you in making these changes. This will also help understand where and why we have made these changes in case you are using your own Character Controller.
4. I stretched the scale of X and Z on the Water4 object. This can cause weird wave and reflection effects sometimes, especially on a larger scale again. If this happens, you will need to modify the Water4 Material settings and reduce the Wave settings. Scaling causes the waves to also scale strangely, reducing these settings will correct this issue. Also make sure you change the layer for the water prefab to "Water"
5. You will need to set the LightProjector material on the BlobLightProjector Prefab once the Standard Assets have been imported

Relevant Changes to the FirstPersonController Class

```

1 namespace UnityStandardAssets.Characters.FirstPerson
2 {
3     [RequireComponent(typeof (CharacterController))]
4     [RequireComponent(typeof (AudioSource))]
5     2 references
6     public class FirstPersonController : MonoBehaviour
7     {
8         [SerializeField] public bool m_IsSwimming;
9         [SerializeField] private bool m_IsWalking;
10        [SerializeField] private float m_WalkSpeed;
11        [SerializeField] private float m_RunSpeed;
12        [SerializeField] [Range(0f, 1f)] private float m_RunstepLenghten;
13        [SerializeField] private float m_JumpSpeed;
14
15        // Use this for initialization
16        0 references
17        private void Start()
18        {
19            m_IsSwimming = false;
20            m_CharacterController = GetComponent<CharacterController>();
21            m_Camera = Camera.main;
22            m_OriginalCameraPosition = m_Camera.transform.localPosition;
23            m_FovKick.Setup(m_Camera);
24            m_HeadBob.Setup(m_Camera, m_StepInterval);
25            m_StepCycle = 0f;
26            m_NextStep = m_StepCycle/2f;
27            m_Jumping = false;
28            m_AudioSource = GetComponent<AudioSource>();
29            m_MouseLook.Init(transform , m_Camera.transform);
30        }
31
32        // Update is called once per frame
33        0 references
34        private void Update()
35        {
36            RotateView();
37            // the jump state needs to read here to make sure it is not missed
38            if (!m_Jump)
39            {
40                m_Jump = CrossPlatformInputManager.GetButtonDown("Jump");
41            }
42
43            if (!m_PreviouslyGrounded && m_CharacterController.isGrounded && m_IsSwimming == false) //Check to ensure not swimming
44            {
45                StartCoroutine(m_JumpBob.DoBobCycle());
46                PlayLandingSound();
47                m_MoveDir.y = 0f;
48                m_Jumping = false;
49            }
50            if (!m_Jumping && m_IsSwimming == false)
51            {
52                if (m_MoveDir.magnitude > 0)
53                {
54                    m_JumpBob.DoBobCycle();
55                    PlayFootStepSound();
56                    m_MoveDir.x = m_MoveDir.x * m_FovKick.m_JumpFactor;
57                    m_MoveDir.z = m_MoveDir.z * m_FovKick.m_JumpFactor;
58                    m_MoveDir.y = 0f;
59                    m_Jumping = false;
60                    m_IsSwimming = false;
61                }
62                else if (m_IsSwimming == false)
63                {
64                    m_IsSwimming = false;
65                }
66            }
67            else if (m_Jumping && m_IsSwimming == false)
68            {
69                m_IsSwimming = false;
70            }
71            else if (m_IsSwimming)
72            {
73                m_IsSwimming = true;
74            }
75        }
76    }
77 }

```

```

104 // get a normal for the surface that is being touched to move along it
105 RaycastHit hitInfo;
106 Physics.SphereCast(transform.position, m_CharacterController.radius, Vector3.down, out hitInfo,
107     m_CharacterController.height/2f, Physics.AllLayers, QueryTriggerInteraction.Ignore);
108 desiredMove = Vector3.ProjectOnPlane(desiredMove, hitInfo.normal).normalized;
109
110 m_MoveDir.x = desiredMove.x*speed;
111 m_MoveDir.z = desiredMove.z*speed;
112
113
114 if (m_CharacterController.isGrounded && m_IsSwimming == false)
115 {
116     m_MoveDir.y = -m_StickToGroundForce;
117
118     if (m_Jump)
119     {
120         m_MoveDir.y = m_JumpSpeed;
121         PlayJumpSound();
122         m_Jump = false;
123         m_Jumping = true;
124     }
125 }
126 else
127 {
128     if (m_IsSwimming == true)
129     {
130         m_Jump = false;
131         m_Jumping = false;
132         // Move slower in water - down to 70% - otherwise go normal speed
133         m_MoveDir *= m_IsSwimming ? 0.7f : 1;
134         m_MoveDir += Physics.gravity * (Time.fixedDeltaTime / 8);
135     }
136     else
137     {
138         m_MoveDir += Physics.gravity * m_GravityMultiplier * Time.fixedDeltaTime;
139     }
140 }
141 m_CollisionFlags = m_CharacterController.Move(m_MoveDir*Time.fixedDeltaTime);
142 // If we hit space and in water swimming, move up
143 if (CrossPlatformInputManager.GetButton("Jump") && m_IsSwimming == true)
144 {
145     m_MoveDir.y += 1 + Time.fixedDeltaTime;
146     //rigidbody.AddForce(transform.up * jumpForce, ForceMode.Impulse);
147 }
148 if (CrossPlatformInputManager.GetButton("Crouch") && m_IsSwimming == true)
149 {
150     m_MoveDir.y -= 1 + Time.fixedDeltaTime;
151     //rigidbody.AddForce(transform.up * jumpForce, ForceMode.Impulse);
152 }
153 ProgressStepCycle(speed);
154 UpdateCameraPosition(speed);
155

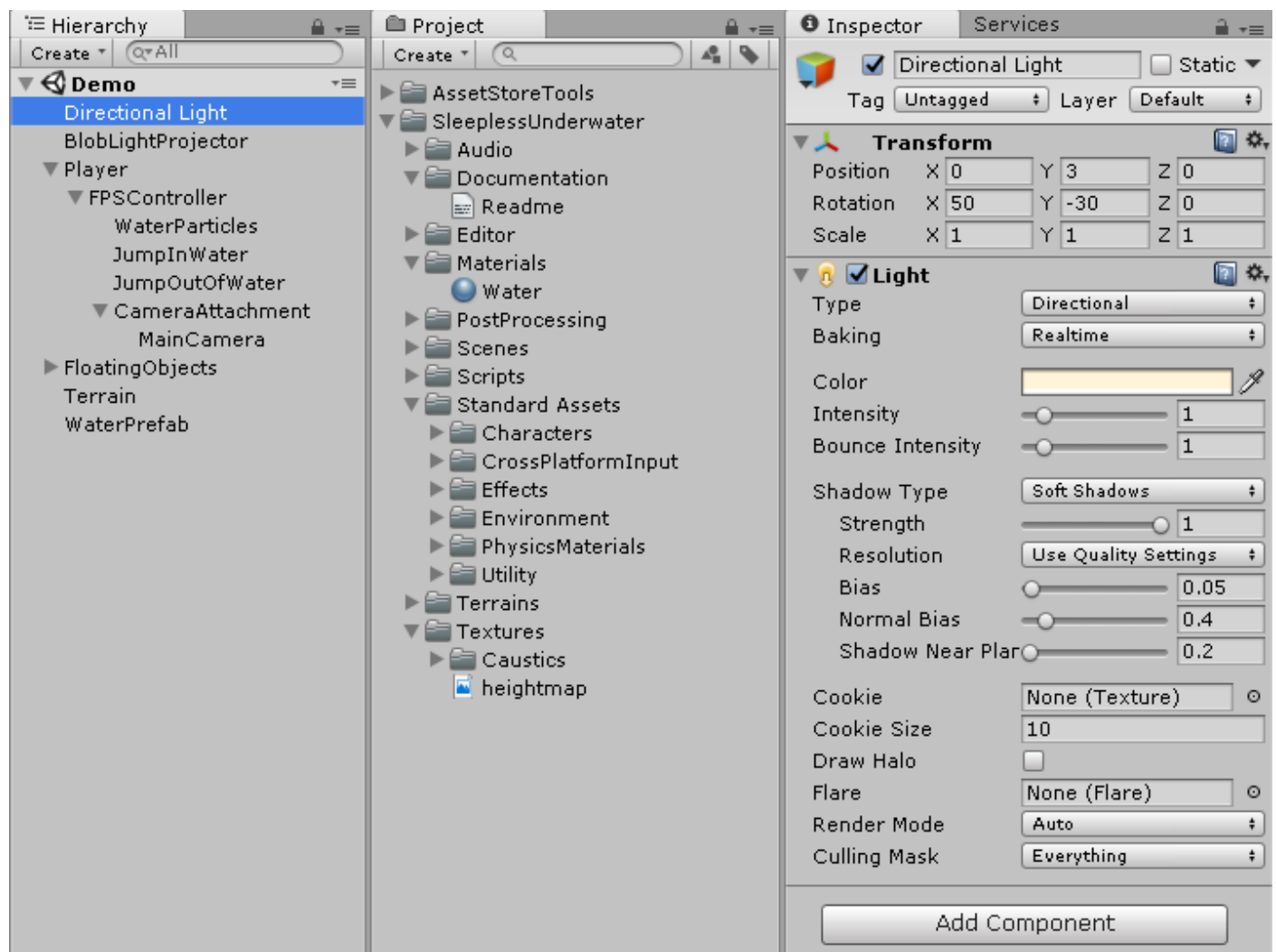
```

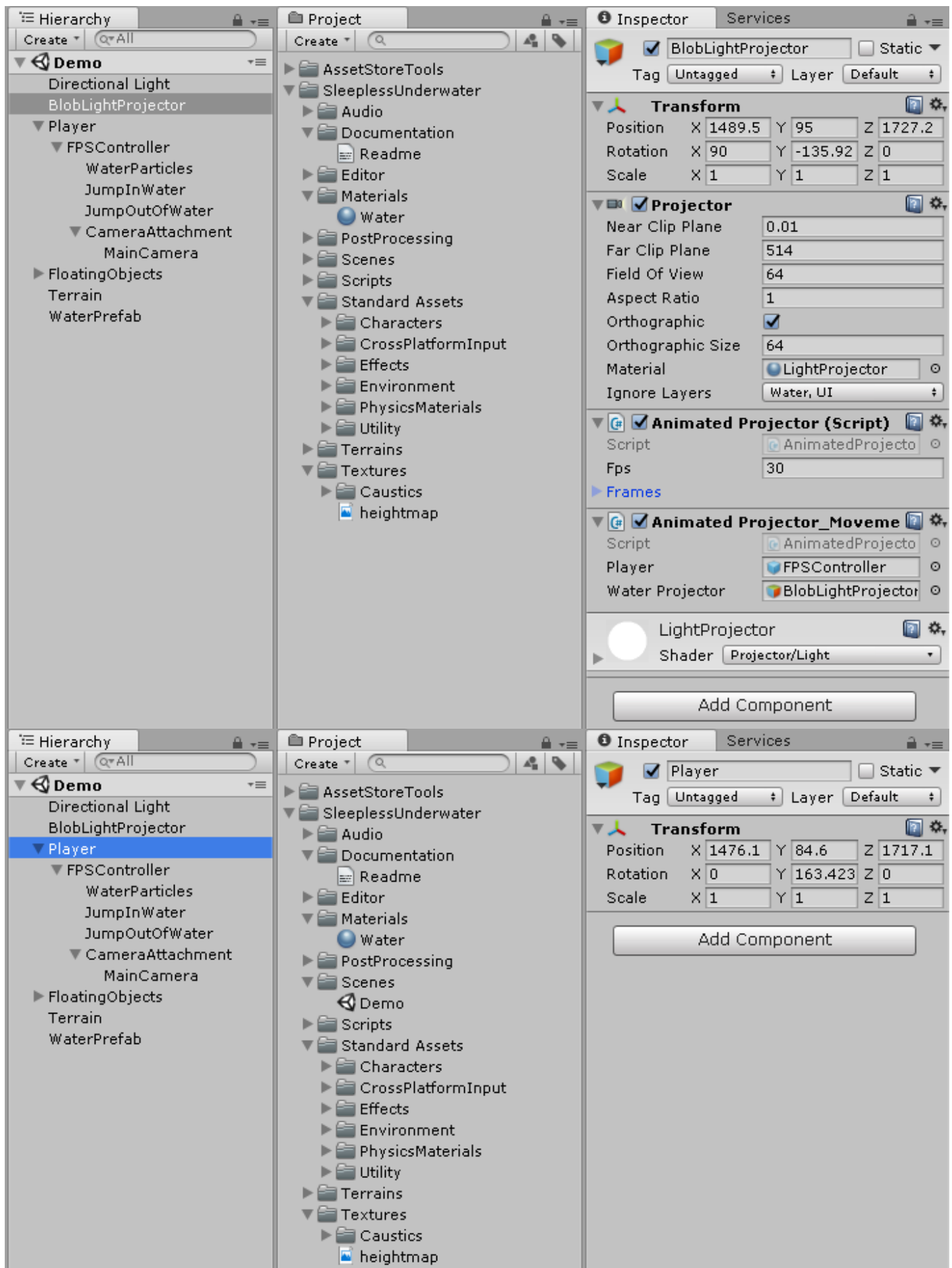
```

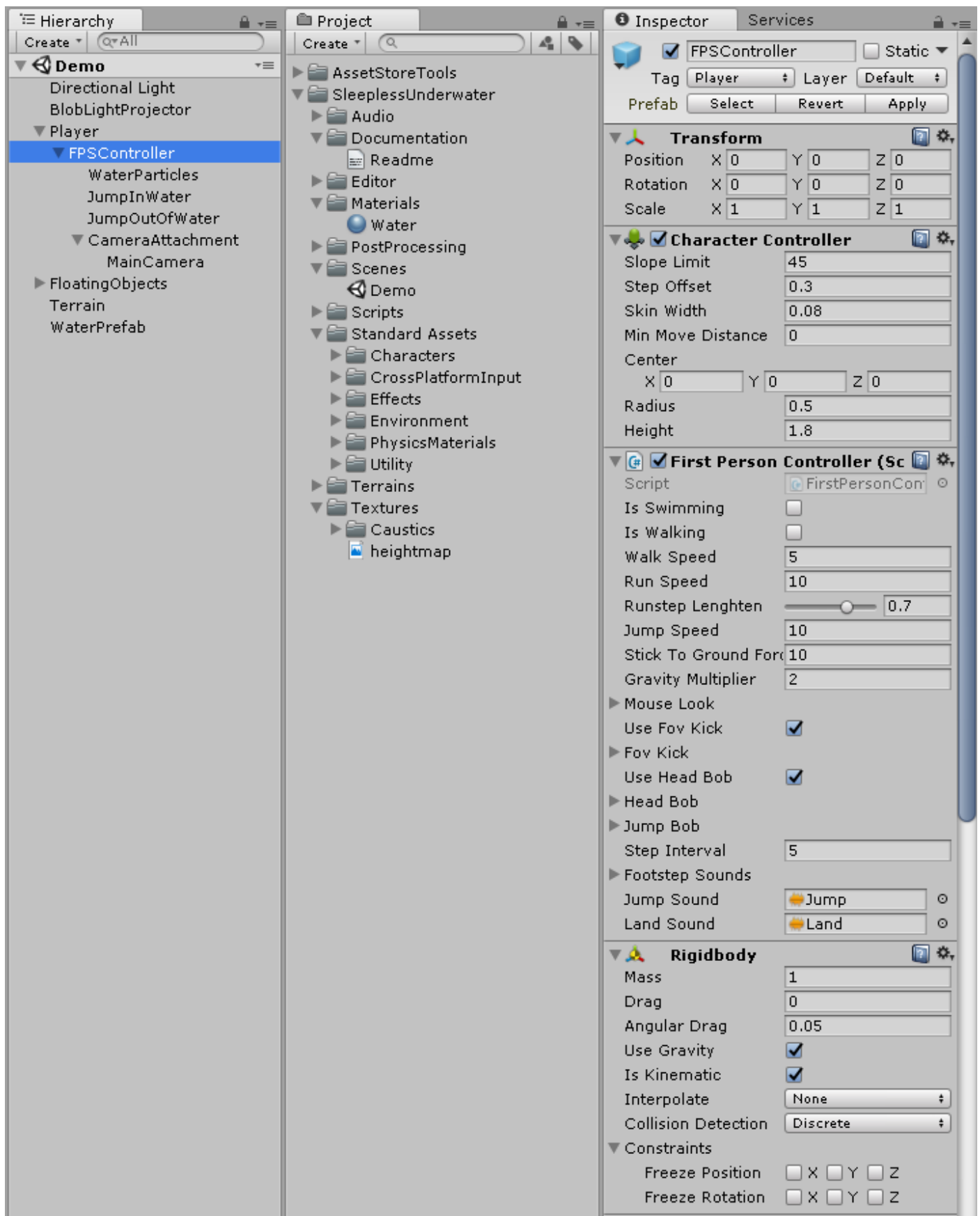
186 1 reference
187 private void PlayFootStepAudio()
188 {
189     if (!m_CharacterController.isGrounded || m_IsSwimming == true)
190     {
191         return;
192     }
193     // pick & play a random footstep sound from the array,
194     // excluding sound at index 0
195     int n = Random.Range(1, m_FootstepSounds.Length);
196     m_AudioSource.clip = m_FootstepSounds[n];
197     m_AudioSource.PlayOneShot(m_AudioSource.clip);
198     // move picked sound to index 0 so it's not picked next time
199     m_FootstepSounds[n] = m_FootstepSounds[0];
200     m_FootstepSounds[0] = m_AudioSource.clip;
201 }
202
203 1 reference
204 private void UpdateCameraPosition(float speed)
205 {
206     Vector3 newCameraPosition;
207     if (!m_UseHeadBob)
208     {
209         return;
210     }
211     if (m_CharacterController.velocity.magnitude > 0 && m_CharacterController.isGrounded && m_IsSwimming == false)
212     {
213         m_Camera.transform.localPosition =
214             m_HeadBob.DoHeadBob(m_CharacterController.velocity.magnitude +
215                 (speed*(m_IsWalking ? 1f : m_RunstepLenghten)));
216         newCameraPosition = m_Camera.transform.localPosition;
217         newCameraPosition.y = m_Camera.transform.localPosition.y - m_JumpBob.Offset();
218     }
219     else
220     {
221         newCameraPosition = m_Camera.transform.localPosition;
222         newCameraPosition.y = m_OriginalCameraPosition.y - m_JumpBob.Offset();
223     }
224     m_Camera.transform.localPosition = newCameraPosition;
225 }
226
227 1 reference
228 private void RotateView()
229 {
230     m_MouseLook.LookRotation (transform, m_Camera.transform);
231 }
232
233 // Set Player to isSwimming true
234 0 references
235 public void inWater()
236 {
237     m_IsSwimming = true;
238 }
239 // Set Player to isSwimming false
240 0 references
241 public void outOfWater()
242 {
243     m_IsSwimming = false;
244 }
245 0 references
246 private void OnControllerColliderHit(ControllerColliderHit hit)
247 {
248     Rigidbody body = hit.collider.attachedRigidbody;
249     //dont move the rigidbody if the character is on top of it
250     if (m_CollisionFlags == CollisionFlags.Below)
251     {
252         return;
253     }
254     if (body == null || body.isKinematic)
255     {
256         return;
257     }
258     body.AddForceAtPosition(m_CharacterController.velocity*0.1f, hit.point, ForceMode.Impulse);
259 }
260 1 reference
261 public bool CanSwim
262 {
263     get { return m_IsSwimming; }
264 }
265 }

```

Relevant Asset Screenshots







WaterPrefab

- ▼ Standard Assets
 - ▶ Characters
 - ▶ CrossPlatformInput
 - ▶ Effects
 - ▶ Environment
 - ▶ PhysicsMaterials
 - ▶ Utility
- ▶ Terrains
- ▼ Textures
 - ▶ Caustics
 - heightmap

Audio Source

AudioClip

None (Audio Clip)

Output

None (Audio Mixe

Mute

☐

Bypass Effects

☐

Bypass Listener Effe

☐

Bypass Reverb Zone

☐

Play On Awake

☒

Loop

☐

Priority

High

Low

128

Volume

1

Pitch

1

Stereo Pan

Left

Right

0

Spatial Blend

2D

3D

1

Reverb Zone Mix

1

3D Sound Settings

Doppler Level

1

Spread

0

Volume Rolloff

Logarithmic Rolloff

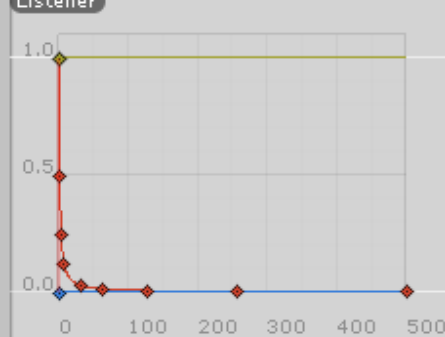
Min Distance

1

Max Distance

500

Listener

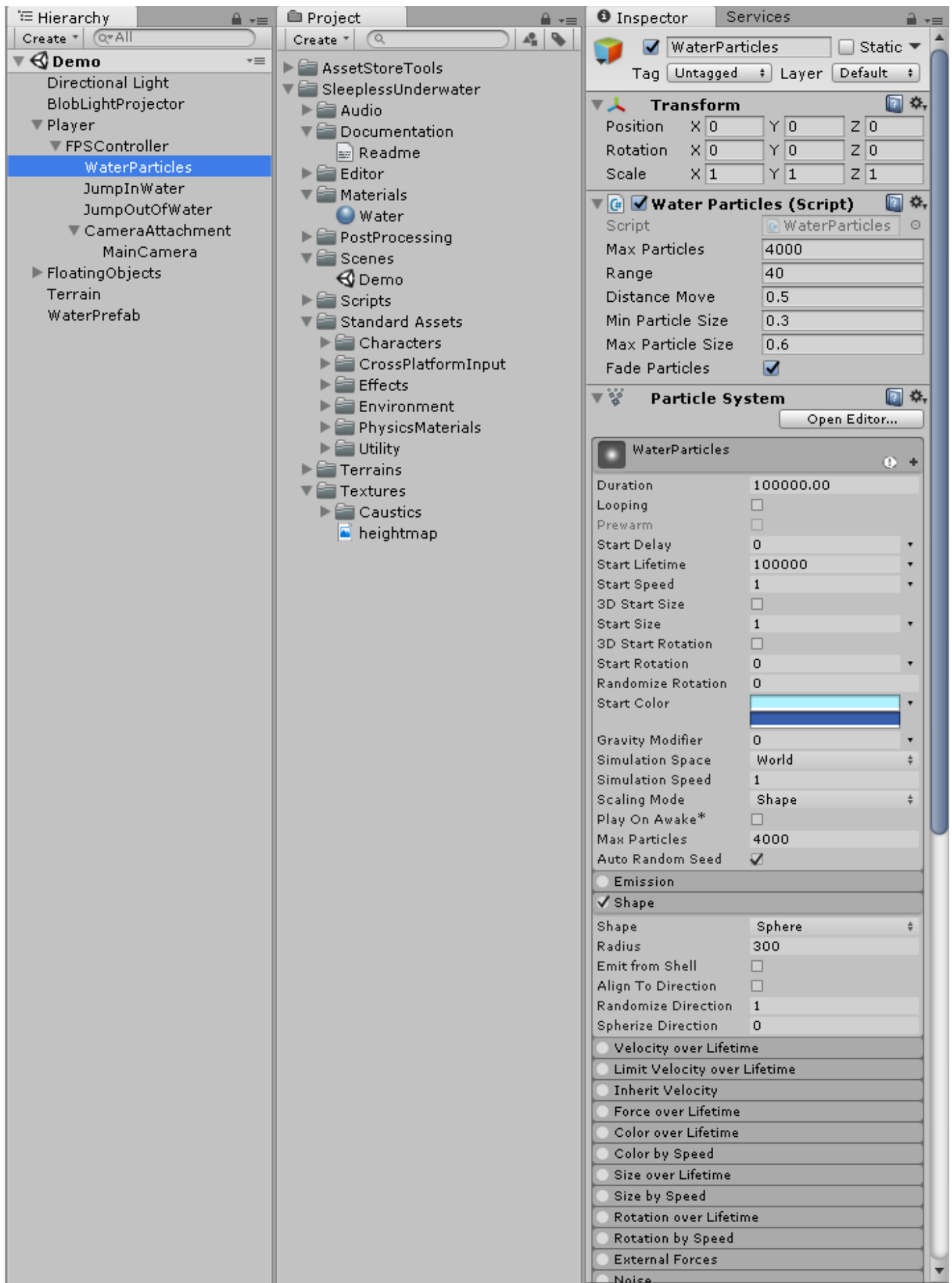


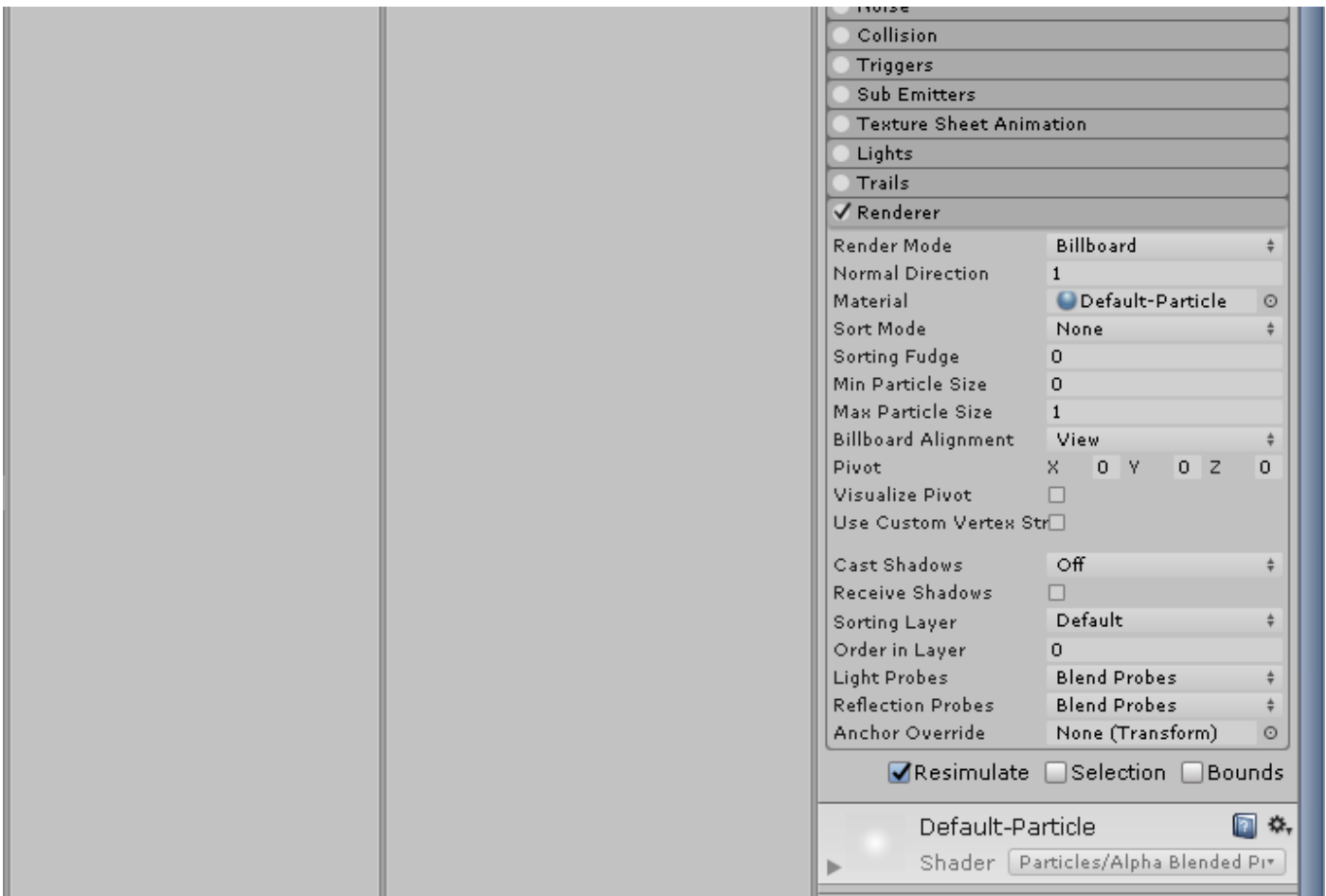
Distance	Volume	Spatial	Spread	Reverb
0	1.0	0.0	0.0	1.0
10	0.5	0.0	0.0	1.0
20	0.2	0.0	0.0	1.0
50	0.0	0.0	0.0	1.0
100	0.0	0.0	0.0	1.0
200	0.0	0.0	0.0	1.0
300	0.0	0.0	0.0	1.0
400	0.0	0.0	0.0	1.0
500	0.0	0.0	0.0	1.0

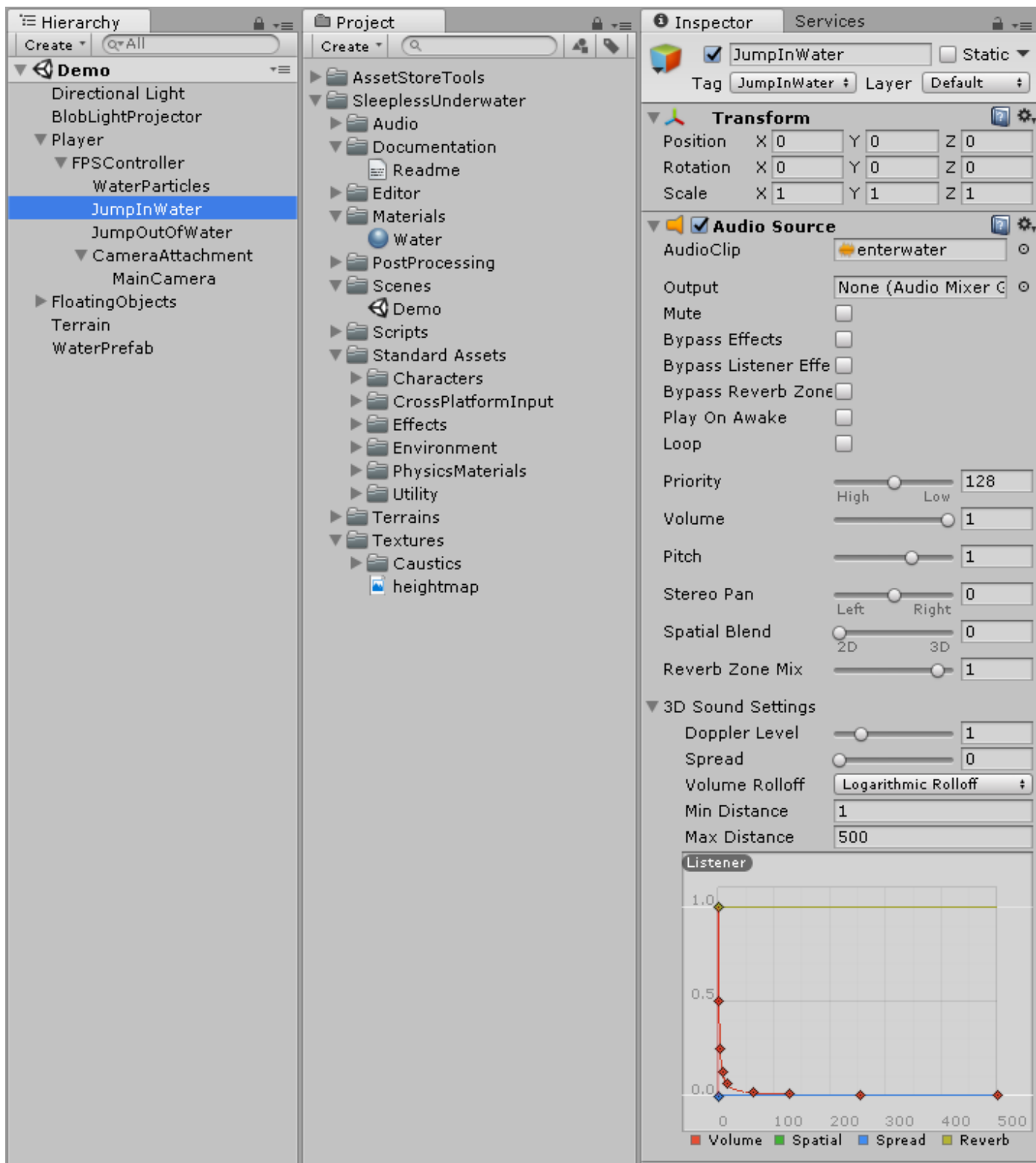
Crouch Height (Script)

Script

CrouchHeight







Hierarchy

Create ▾ Q*All

▼ Demo

Directional Light

BlobLightProjector

▼ Player

▼ FPSController

WaterParticles

JumpInWater

JumpOutOfWater

▼ CameraAttachment

MainCamera

► FloatingObjects

Terrain

WaterPrefab

Project

Create ▾

▼ AssetStoreTools

▼ SleeplessUnderwater

► Audio

▼ Documentation

Readme

► Editor

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Water

► PostProcessing

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Demo

► Scripts

▼ Standard Assets

► Characters

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► Effects

► Environment

► PhysicsMaterials

► Utility

► Terrains

▼ Textures

► Caustics

heightmap

Inspector

Services

JumpOutOfWater

Static ▾

Tag JumpOutOfWz+ Layer Default ▾

▼ Transform

Position X 0 Y 0 Z 0

Rotation X 0 Y 0 Z 0

Scale X 1 Y 1 Z 1

▼ Audio Source

AudioClip exitwater

Output None (Audio Mixer C

Mute

Bypass Effects

Bypass Listener Effe

Bypass Reverb Zone

Play On Awake

Loop

Priority 128

Volume 1

Pitch 1

Stereo Pan 0

Spatial Blend 0

Reverb Zone Mix 1

▼ 3D Sound Settings

Doppler Level 1

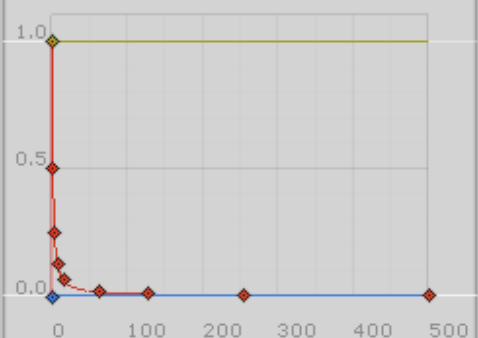
Spread 0

Volume Rolloff Logarithmic Rolloff ▾

Min Distance 1

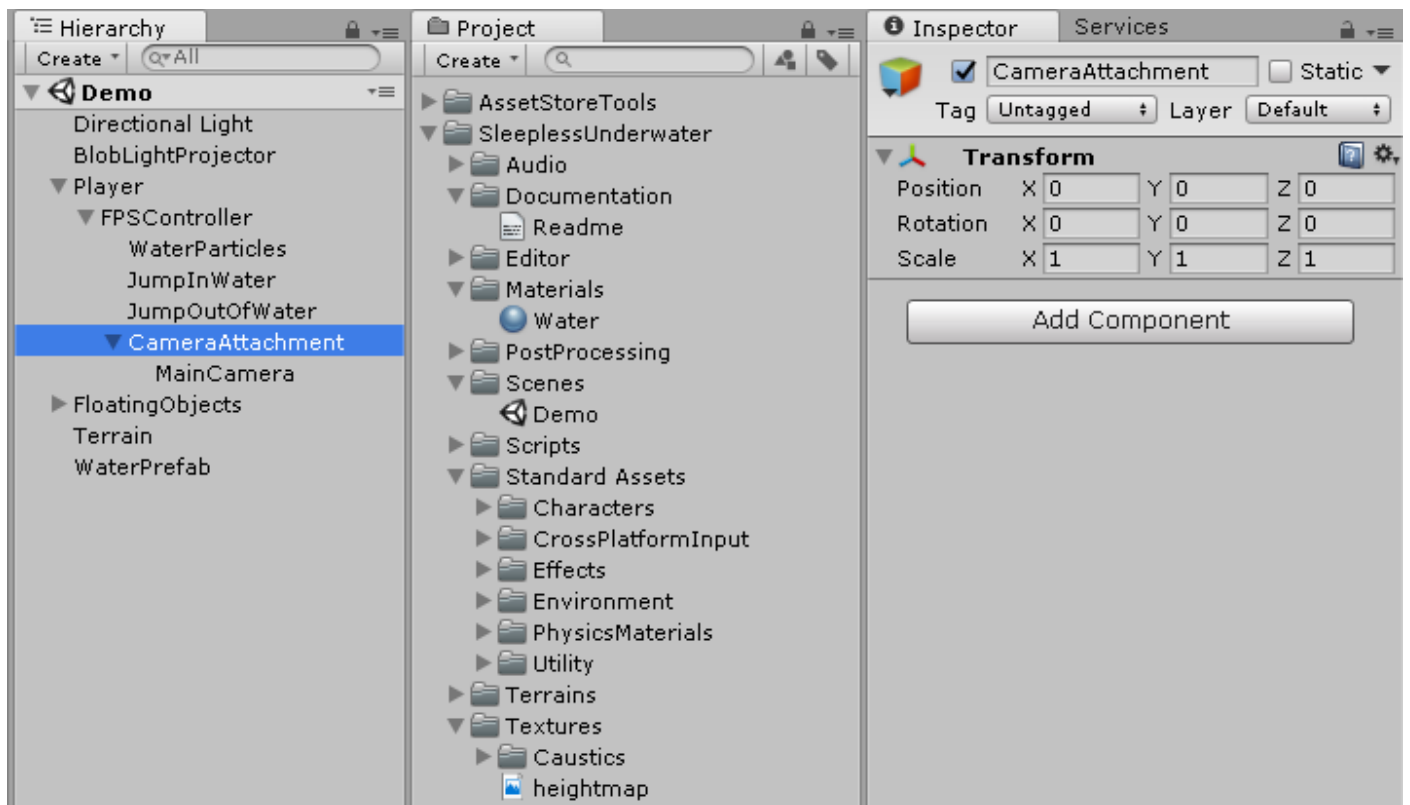
Max Distance 500

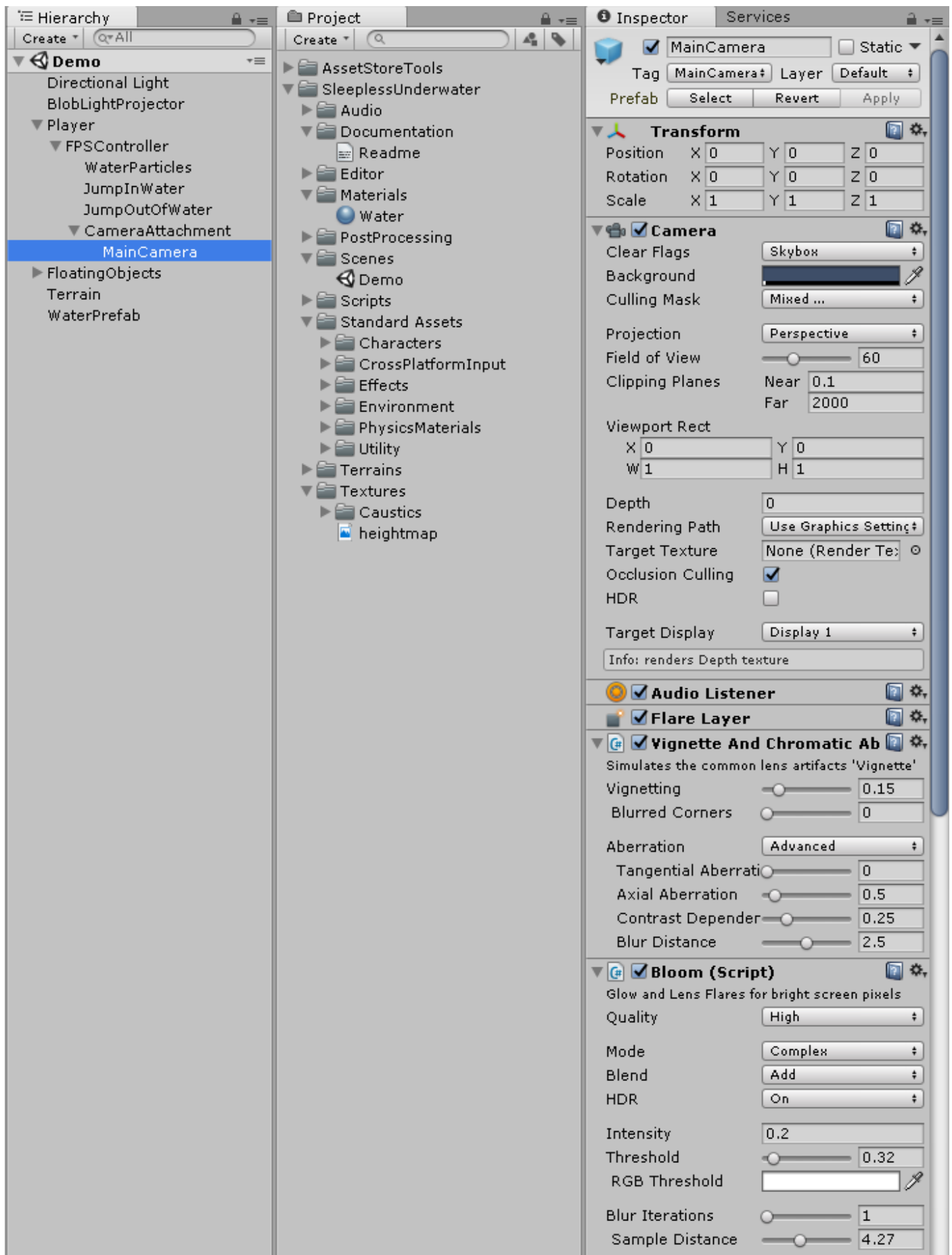
Listener

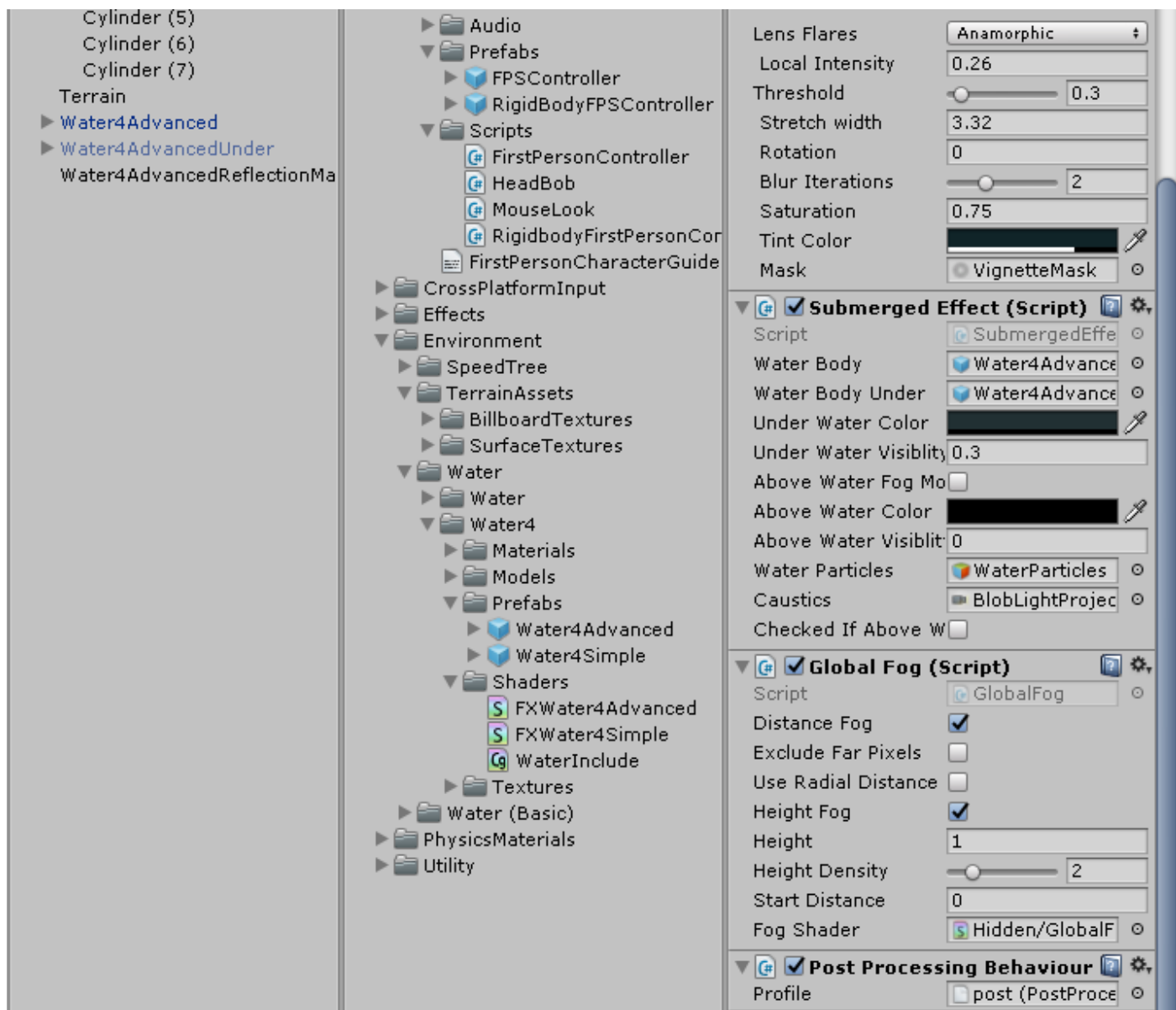


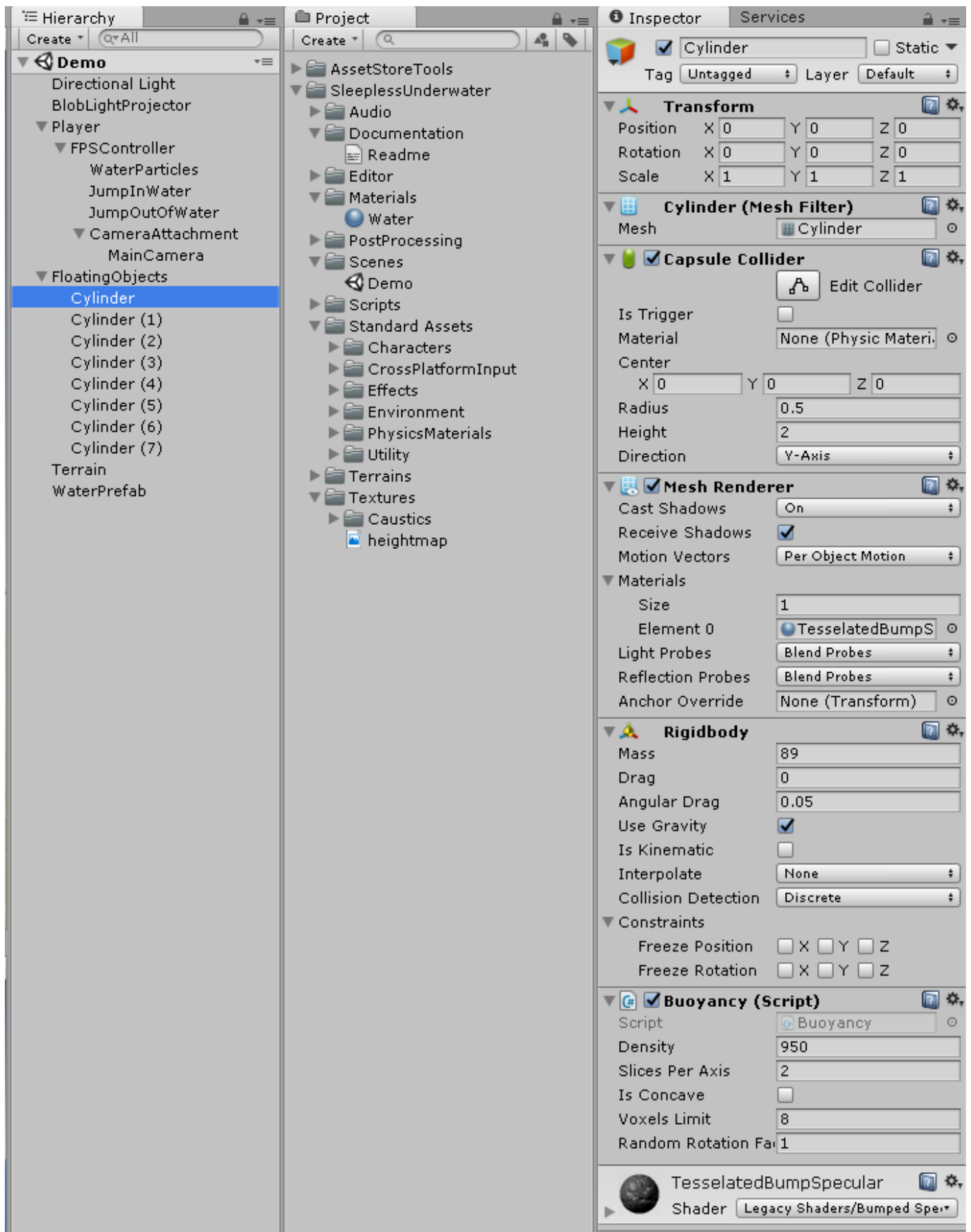
Distance	Volume	Spatial	Spread	Reverb
0	1.0	1.0	1.0	1.0
100	0.0	1.0	1.0	1.0
200	0.0	1.0	1.0	1.0
300	0.0	1.0	1.0	1.0
400	0.0	1.0	1.0	1.0
500	0.0	1.0	1.0	1.0

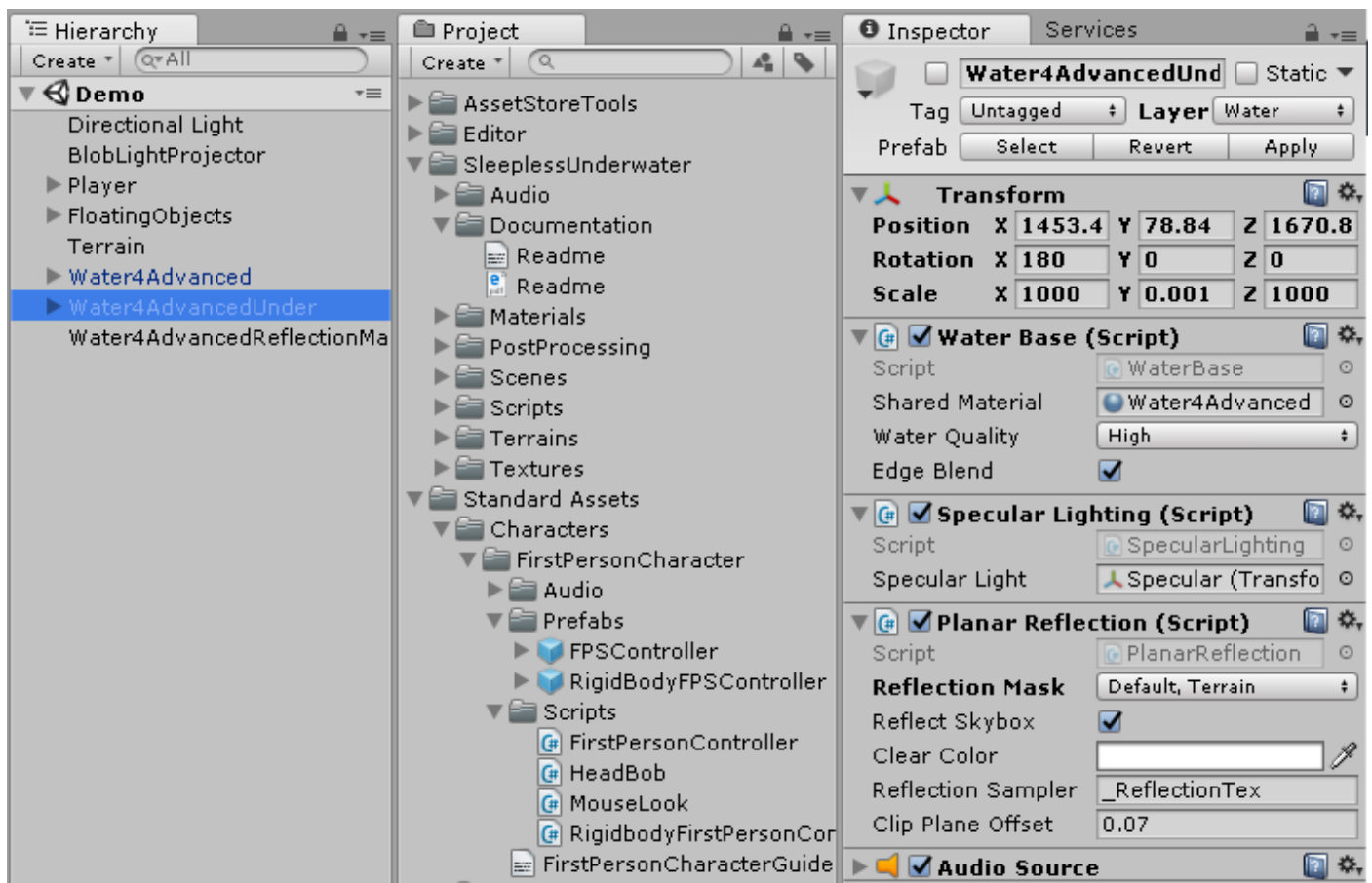
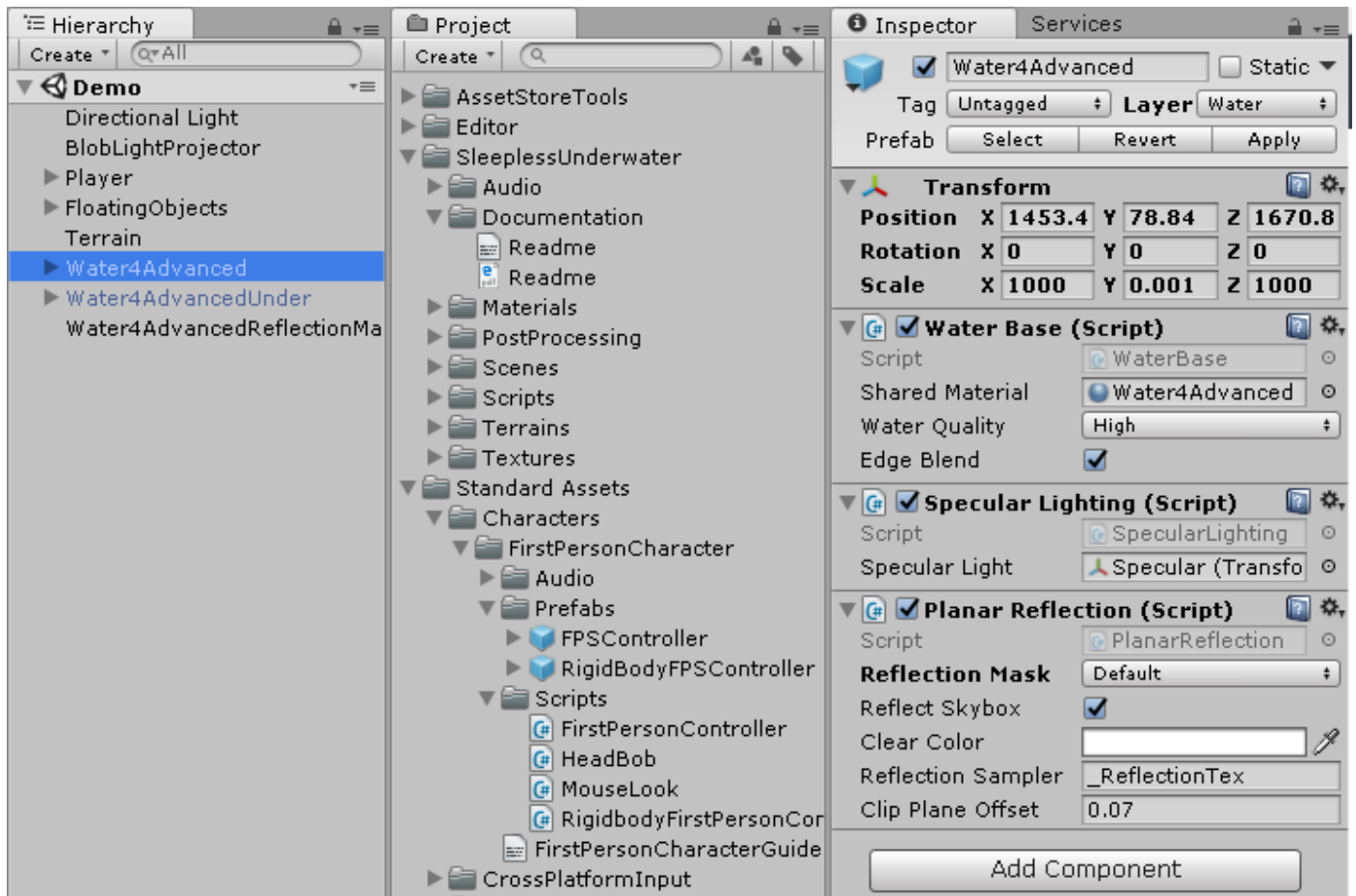
Volume Spatial Spread Reverb











Contact Us

If you have any questions, comments or improvement suggestions, you can email me: daceian@yahoo.com.au

Other contact details available on our website: www.sleeplessentertainment.com.au