

HADAL

HADAL is the name of one of the levels into which the ocean depths are divided. In Oceanography, the Hadal zone refers to the waters and seabed below the abyssal zone, corresponding to the deepest areas of the ocean in the large trenches located more than 3 miles deep.

This region is characterized by a cold environment, extremely high hydrostatic pressure, scarcity of nutrients and total absence of light.

Hadal is a French word for the "place of death", coming from the Greek god of hell, Hades, and his domain.

Hadal is an oceanic music album that contains four soundscape compositions born from reflecting on the depths of the ocean, evoking the deepest parts of the Earth's crust, the Mariana Trench, almost 7 miles deep, with extremely low temperatures, absence of light, very high pressure and where, despite everything, life exists.

Hadal highlights events such as ascending and descending movements of sound, interpreting oceanographic phenomena such as the displacement of tectonic plates, volcanic eruptions, earthquakes, currents and more, aiming at the hearts of all listeners so they can feel the pulse of the knowledge of ecosystems and the biodiversity of life in the ocean.

Today, the most important thing in the world is the Environment.

And I ask myself:

What is the highest part of the Earth like? What is the ocean floor and its lowest depth like?

Breath control is the only thing that allows buoyancy and from breathing arises my concern for exploring extreme places where the body has and will always have to adapt. Adaptation is the basis for avoiding extinction.

I want to share this beauty with people and affect them in order to raise awareness and a sensitivity based on the awe for the unknown, making it known and protecting it. To create collective awareness in order to act with conviction in the face of the necessary protection of each creature, both endemic and global, making underwater flora, algae forests, plant gardens and the countless life forms that bear the fruit that provides most of the oxygen we breathe, a great treasure for all humanity.

Ridges, Ring of Fire, Volcanoes, Pulse, Submarine Canyons, Water Masses, Currents, Upwelling, Food Web, Trenches, Basins, Subduction, Slope, Nutrients, Bathymetries...

Sound travels faster in water than air, therefore I ask you to close your eyes and travel to another dimension, where the sound of the movement of cetaceans and each of their songs and majestic dialect, along with the schools of fish and each underwater movement, will be an open door to relate to that mysterious world, so we can learn to preserve it and avoid its extinction.

Knowledge is the path for protection.

Everything that is above is also below, and everything that is below is also above. Like the ridges, the canyons, the masses of water, the trenches, the currents and upwellings below, so the winds and storms above, the temperatures, the depths, the cliffs... and many more phenomena: a rational sensation of a perfect natural puzzle.

Nature is a never-ending cycle and I share the urgency of showing, from its beauty, the majesty of each life form, from flora to fauna, each single creature being essential for the pulsation of the planet, for the pulse of breathing and, above all, to connect with from integrated knowledge and from the spirit of exploration. In this constant, everything is connected and nothing is discarded, from the undergrowth to plankton, witnessing the symbiosis that inhabits both the oceanic and terrestrial universe.

Biodiversity is in a state of alert and urgency. In this year 2021, the planet is experiencing a relative rest from human beings, but destruction doesn't stop. And regarding what is truly essential in life, there is a slight development that has become evident and that had never been seen before: the improvement of air quality in large cities, the presence of animals in places where they had disappeared from, beauties of nature in more pristine states, and much more. But, on the other hand, the forceful expressions of large destructive natural phenomena, have increased in frequency and magnitude, shifting to unusual geographical locations.

Now more than ever we have to be responsible and preserve in order to save all that is disappearing. It is an undeniable example of how nature comes back to life if we leave it alone, without human intervention.

I feel the need to explore extreme places, from high mountains, such as the Licancabur volcano at 5,916 m.a.s.l., or the Láscar volcano at 5,516 m.a.s.l., where the body, the means of transportation, is made to feel various levels of extremely cold temperatures, the mouth cannot pronounce words and the hands freeze even with three layers of gloves, in a state of alert before reaching an almost freezing point, a point where you feel like you're really alive. After subjecting the body to another state of bodily transformation, where each layer of clothing protects and enables you to reach places with not only very low temperatures, but diving in masses of water up to 170 feet deep, where the pressure is gradually noticeable and each movement becomes slower and slower, but the constant feeling is that of absolute freedom.

If I share the way in which the body needs specialized clothing to live these extreme experiences, I do it in order to rationalize the constant adaptation we have to make as human beings, so we can be able to transmit and communicate from places that are not our origin and where the origin is the identity of each being. I live the experience in order to pass it on.
No WATER, no life.

Denise Lira Ratinoff
May, 2021

LEVELS OF THE OCEAN

Oceanic Zones

Pelagic
Photic
Epipelagic
Aphotic
Mesopelagic
Bathyal
Abyssal
Hadal
Demersal
Benthic

(Study material from the Internet)

The **pelagic zone** (from the Greek πέλαγος (*pélagos*), 'open sea') is the part of the water column of the ocean that is not above the continental shelf. The organisms that inhabit this area of the ocean are called **pelagic**.

In marine and lake ecosystems the **photic zone** is the one into which sunlight penetrates. Its depth is highly variable depending on the turbidity of the water. It can end up just a few decimeters from the surface in very turbid waters of rivers and swamps, or reach 200 or over 600 feet, the typical value in tropical regions of the oceans that have very transparent waters.

The **euphotic depth** or level is the depth at which the light intensity penetrating the surface is reduced to 1%, limit below which there is not enough light for photosynthesis.

The **epipelagic zone** (from the Greek ἐπι(*i*) ἐπί gr. 'on' + pelag- πέλαγος gr. 'high sea' + -ik-os/-ē gr.) is one of the levels into which the ocean is divided according to its depth. In oceanography, it refers to marine waters located between the surface and 600 feet deep or mesopelagic zone. This region is characterized by abundant underwater life since sunlight enables plants to carry out photosynthesis.

The **aphotic zone** (from the Greek α, 'without' and φωτος, 'light') is defined as the zone, both oceanic and lacustrine, in which the development of photosynthetic processes is not possible, since less than 1% of sunlight penetrates in them. The only other source of light are some species of bioluminescent fish.

The depth at which this zone begins is approximately between 600 and 3,000 feet, depending mainly on the turbidity of the waters, extending to the bottom of the water column. In oceanic waters, the aphotic zone has a temperature of 32-42 °F, depending on the characteristics of the water and depths.

In these areas, oxygen is scarce, there are almost no algae, the pressure is very high and the temperature very low. There is almost no presence of phytoplankton and zooplankton in these areas.

One of the levels into which the ocean is divided according to its depth is called the **mesopelagic zone**. In oceanography, it refers to marine waters located between 600 and 3,000 feet deep, below the epipelagic zone and above the bathypelagic zone. This region is characterized by the fact that some sunlight penetrates it, although it is insufficient for plants to carry out photosynthesis.

The **bathyal zone** or **bathypelagic zone** (from the Greek bath(y)- βαθύς (bathys) 'deep' + pelag- πέλαγος 'high sea' + -ik-os/-ē, "deep sea") is one of the levels into which the ocean is divided according to its depth. In oceanography, bathyal refers to the waters and seabed located between 3,000 and 12,000 feet deep, below the mesopelagic zone and above the abyssopelagic or abyssal zone. This region is characterized by high hydrostatic pressure.

One of the levels into which the ocean is divided according to its depth is called the **abyssal zone** or **abyssopelagic zone**. It is located below the bathypelagic zone and above the hadal zone, and corresponds to the oceanic space between 12,000 and 20,000 feet deep. It is a dark area without sunlight.

In marine biology, the term abyssopelagic fauna refers to the description of a certain type of environment or natural habitat with certain species of free-swimming marine animals that live or feed in open waters at such depths, never reaching the surface.

On the other hand, in marine biology there is also the term benthic abyssal fauna, which is the fauna linked to the ocean floor, which is very scarce and characteristic.

The word abyssal comes from abyss, a deep and dark place. This region is characterized by a cold environment, extremely high hydrostatic pressure, scarcity of nutrients and total absence of light. An abyssal trench is formed when the oceanic crust subducts under the continental crust at a slight angle of inclination, which produces the rupture of the lithosphere and the formation of a trench.

One of the levels into which the ocean is divided according to its depth is called the **hadal** or **hades zone**. In oceanography, it refers to the waters and seabed below the abyssal zone and corresponds to the deepest areas of the ocean in the large ocean trenches located more than 20,000 feet deep. It represents approximately 1-2% of the global benthic zone. This region is characterized by a cold environment, extremely high hydrostatic pressure (increases by 10 atm for every 100 m of depth, reaching ~1,000 atm in the deepest ocean trenches), scarcity of nutrients, total absence of light and hypoxia.

The **demersal zone** is the part of the sea or ocean (also in deep lakes) that comprises the water column that is close to (and is significantly affected by) the benthic bottom. The bottom zone is just above the benthic zone and forms a layer over the deeper zone.

The **benthic zone** is the ecological region at the lowest level of a body of water, such as an ocean or lake, including the surface sediment and some subsurface layers. The organisms that live in this area are called benthos. They generally live in close relationship with the underside of the substrate, and many of these organisms are permanently attached by their underside. The topsoil layer overlying the water body, the benthic boundary layer, is an integral part of the benthic zone as it greatly influences the

biological activity that takes place there. Examples of soil layers include sand bottoms, rocks, corals, and mud in bays.

SOUNDSCAPES

HADAL, compositions by Denise Lira Ratinoff

To feel, to experience, to discover, to dream, to relate, to love...
These are 20 minutes and 10 seconds of soundscapes that reflect on dialogues of oceanic nature and also evoke human intervention, manifesting the devastating acoustic pollution underwater.

These sounds were recorded directly from different oceanic places.

The process is absolutely fascinating: first sound editing and then mixing sound with its environments. Traveling through time archived and cataloged in the sound libraries of several marine species, is an uncommon treasure and a great testimony of the many species in danger of extinction. Each of these beautiful creatures is cataloged with its species and habitat, which is of great geographical and scientific value. The same for the sound of various natural phenomena such as eruptions, currents, earthquakes... which describe and reveal life to us, even in the deepest part of the earth's crust, the Mariana Trench, at almost 7 miles deep.

Recover - Care - Preserve - Contemplate - Respect - Explore...

Beauty is the only way to reach the heart and create awareness.

Thank you for feeling and trying to understand that we are ONE and in collective collaboration we can respect each other without doing harm. TIME doesn't stop and we just need to contemplate the ocean that provides most of the oxygen we breathe.

Thank you for having this experience.

HADAL, the beginning of a GREAT OCEANIC SYMPHONY.

With gratitude and hope,
Denise

HADAL - Cetacean Dialogue

05'06"

Throughout this sound journey, we hear the interaction of a diversity of cetaceans. Cetaceans are divided into Mysticetes (which have baleen) and Odontocetes (which have teeth).

The Humpback Whale is the one that sings the most, and it can be heard between the divine magic and the pleasure of a completely natural environment, and the stages of a journey that makes us feel the oceanic geography, passing through currents, underwater canyons, trenches, and much more, which you can learn about in the section described as *Ocean and part of its language*.

Cetaceans are warm-blooded mammals, they feed on milk at birth, they breathe through lungs and are very supportive, and for me romantic, creatures when they coexist.

Thanks to each of the cetaceans for being my reason for creation.

HADAL - Acoustic Pollution

04'35"

A disturbing ambient sound, a sensation of rebound, a mix between different metallic materials and other sound textures, where the masses of water move to another plane and noise becomes a challenging protagonist.

Many variations with very specific cetaceans disoriented by this heartbreaking underwater acoustic pollution, invisible at first, produced by sonars, boats, masking, explosions and more, muting the sounds and the water's natural environment, increasingly fading away due to the intense expansion of artificial noises.

There are violent explosions, for several minutes, until finally you can only hear the echo and intensity of the sea, the waves reappear, taking us back to the feeling of an ocean without human intervention. But pollution doesn't stop and will never stop, leaving behind a truly devastating human footprint.

In the end, silence appears and only the cetaceans' percussive sounds remain, together with the majestic song of the Humpback Whale.

HADAL - Blue Whale

05'01"

Immensity, waves and the movement of water between the depths, is where the song of the Blue Whale appears, whose Chilean dialect is different from that of the species in other parts of the world, a unique acoustic in Chile where each pulse, each rhythm is a beautiful mystery.

Songs of love, of communication, of socialization, a search for food and above all, a sense of identity. Listening to the largest animal and mammal on the planet, whose presence is essential for the ocean's health, its frequencies heal the soul. A blue planet where the synergy of nature and the symbiosis between species provide life.

Through their songs, imagine their physical presence, which can reach almost 100 feet long, as you listen to their sound and travel to another dimension.

Homage to Dr. Susannah Buchan.

HADAL - Pulse

05'28"

The pulse of the Sei Whale is the central character in this composition. I invite you on an underwater journey until we reach the sediments of the deepest part of the ocean.

We will go through earthquakes, avalanches, eruptions, currents, bubbles, and a beautiful geographical contemplation through sounds.

The Sei Whale takes us in the rhythm of the journey, alerting us to control our body in order to be aware of what we are witnessing in this completely diverse environment, where each creature has a reason for being, each flora has its relevance, and we humans have just been invited to contemplate.

It is a natural journey where the cetaceans' hearing is the entrance to the soul and we only have to listen to be able to truly imagine.

Thanks to the ocean depths, for teaching us so much.

Homage to Patricio Aguilar Díaz.